JOURNAL, L.J. Brass
6th Archbold Expedition to New Guinea.

1959
Sat. March 14. Hobart Van Deusen and I left Idlewild, New York, at 3 A.M. on a Qantas Super-Constellation, Captain "Howdy" Howse. Plane 3 hours late in arrival from London on round the world route. Clear weather after 5 inches snow in New York. Plane about half full.

At airport, in the steam-heated B.O.A.C. lounge, we were interviewed by Associated Press man, Dave Robinson.

Arrived San Francisco in 11 hrs. 25 min. (2504 miles). Slow flight against headwinds. Much snow on the Rockies and Sierras. Much more than I have seen there before. Rockies mostly under cloud, but Sierras clear. The desert intermontane valleys usually quite clear of snow. In contrast there is grass at S.F.; green but short. Temperature there 58° F.

Mary Taylor came to the airport to see us. Taking her doctorate at Berkeley. Graduates in June. Has an offer of a teaching job at Wellesley and will probably take it. Expecting a stay of 5½ hours at S.F., we had arranged to go out to Berkeley. But this stop cut to make up lost time, and we took off at 2:33 P.M.

Beautiful sunset, viewed over a field of fleecy white cloud from 10,000 ft. Great blaze of shades deepening to gold on high clouds piled up ahead.

Set down at Honolulu 9:40 P.M., their time, left 11:42. Drinks, etc. on the company in the dimly lit Airport lounge overlooking the arrival and departure of frequent planes. Big passenger list on a Japan Air Lines plane going to Japan. Crowd of Japs to see it off; much picture taking. The Southern legislators who voted against Statehood for Hawaii a couple of days ago would have felt justified on a look around the Honolulu airport this evening. Probably two-thirds of the people there were colored. Predominantly Japanese and Japanese crosses with white, Polynesian, etc. A sprinkling of blond white girls escorted by Hawaian and Japanese hybrid men. An informal Mother Hubbard sort of dress, long, loose and of gay materials or plainish, popular with women of all shade and lineage, including obvious mainlanders who did not look really at home in them.

The air terminal made attractive at night by coconut palms. But these ornaments of the tropics were bare of nuts and bore no dying leaves, as coconuts should. It would be too bad, I suppose if a nut should fall on a tourist.

Sunday. March 15. Set down on Canton Island, 3 degrees S. of the equator, and in the Phoenix Group (British) at 5:55 their time. Six hours and 13 min., 1925 miles from Honolulu. Took off at 7:13 A.M. We are loaded too heavily to do the normal Super Constellation trip of miles from Honolulu to Nandi in Fiji.

Fruit juices and coffee, also iced beer, served ashore. A milepost in the terminal garden says we are 7049 miles from New York, 3291 from Sydney. Said garden has grown rather well since 1957, when I was here last. A few coconuts, mostly wide ranging littoral shrubs and small trees, e.g. Cordia, Scaevola (glabrous), Tonocarpus, Casaisa, Pandanus, with Crinum and various weeds as herbaceous plants. Two or three moths seen in late flight, and two spp. of butterflies. Heard a passenger exclaiming about a small gray lizard.

Crossed International Date Line

Arrived Nandi 12 noon their time. 1293 miles and 5 hours from Canton Island. Showery there. Passengers had tea, the watery syrup mixes which are called fruit juices here, and bar drinks.

A 10,000 ft. runway for big jet aircraft nearing completion. To me it seems to be across wind. Certainly it crosses the present runway at a wide angle. The inland end is rather close under the hills. Weather today fairly cool - for Nandi. Surroundings of Mocambo Hotel at airport colorful with flowering trees, shrubs, etc. but conditions against photography. Showers also drove to cover a small crowd of locals - mainly Hindu, some Fijian - gathered to watch the planes, and perhaps to say goodbye to some missionaries (2 nuns, some native girls) who took off by another Qantas craft for New Zealand soon after our arrival.

Monday, March 16. Skipping a day, but spending only a little over an hour in Fiji we left for Sydney at 11:10 Nandi time. About 50% of our passengers stayed at Nandi or branched off there for New Zealand.

One of our passengers bound for Sydney is a man named Batchelor, who says he saw to the unloading and assembling of Dick Archbolds' Fairchild aircraft KONO in Brisbane in 1936. Now is distributor of ethyl additive in Sydney. Has been in U.S. on business. Drinking heavily.

Flew over Sydney as night fell and landed at 8:25 their time. Journey of 10,215 miles from New York, 39 hours 55 minutes flying time. A very good flight. After a time, one becomes used to sitting up in a plane and takes numerous naps. Van and I both in good shape after the long flight.

Landing formalities were perfunctory and soon over (smallpox vaccination certificate, passport, alien registration exemption customs). Interviews by 5 or 6 newspaper men took more time. Were met at airport by Curators Allen Keast (Birds) and Basil Marlowe (Mammals) of the Australian Museum, who drove as to our hotel in town (Wentworth Hotel).

First impressions of Sydney include cleanliness of streets and buildings, clear air, absence of diesel fumes (they still have "trams"(trolley cars) and the buses are electrical), and smallness of the motor cars, which are mostly of English or the local Holden makes. There are numerous small parks, and trees in some of the streets (plane trees, Moreton Bay figs, Lombardy poplars, etc.). The hotel is an old building and semi-modern in appointments. Food good and well served in an attractive dining room (some European waiters). Van and I have a twin bedroom suite with big sitting room, padded bar, refrigerator, window type air conditioner, and bathrom for £ 6-10-0 a day (about $14). A rather high price for Australia. But we do have two nice vases of gladiolus, free TV and radio.

Keast and Marlowe dined with us at the hotel. Young men of pleasant manner, keen and enthusiastic. Marlowe an Englishman about 5 years in Australia, formerly with CSIRO, about 2 years at the Museum; interested in ecology, physiology and systematics. Keast an Australian. Has been longer at the Museum than Marlowe, and is perhaps more aggressive. Much interested in ecology and problems of speciation. Is presently working on a problem of breeding in birds in the dry Bourke area (12 inch rainfall), where molting is photoperiodic but breeding is governed by rainfall.

After dinner we drove through the King's Cross and Rose Bay districts of the city. King's Cross is the principal night life spot. Some big, modern apartment houses (said to be very expensive). Large European population (post-war). Numerous "Expresso" coffee shops.

Keast told of a numerous brush-tail possum population in the city parks and gardens, and their feeding on garbage with the alley cats at night. Fig birds ( ) have come in as an established population associated with the Moreton Bay figs.

Tuesday, March 17. Left Sydney by 44-passenger Vickers Viscount prop-jet (4-motor) plane of TAA at 11:08 AM and arrived Brisbane 1:05 PM. Distance 534 miles direct, but we climbed to 25,000 ft. and still had to do much dodging of clouds. A big cyclonic disturbance to the SE and showery conditions in both Sydney and Brisbane. Weather pleasant as regard temperatures. Summer has been cool, I'm told.

Descending through the clouds near Brisbane, the first thing to attract attention was the red or white roofs of the houses, the red being mostly tiled, the white painted galvanized iron. Bananas growing in back yards indicated the sub-tropical climate.

Was met at Brisbane by a Mr. White of ABC (Australian Broadcasting Commission) and at 2 o'clock gave a tape recording on our New Guinea work at the studios in town.

Confirmed with Qantas our air bookings for Port Moresby. Procured required income tax clearance. Placed an out-of-order exposure meter for overhaul. Then took a taxi out to my sister Edna Henderson's place in suburb of Hawthorne.

Sydney. Upon landing in Sydney last night, I was handed a message from the Dept. of External Affairs, "Arrangements have been made with Commonwealth authorities Port Moresby, where you are scheduled to arrive on 31 (sic) March. Offices of Department of Territories and External Affairs in Sydney will be glad to give further information". This morning I first phoned External Affairs, where thanks for their message was all that was necessary. Then Van and I called at Dept. of Territories, where I, having airlines transportation to pick up at 10 o'clock, fidgeted in a spacious and attractive reception office for fully 15 minutes before a Mr. Williams came out to see us. He had nothing to say beyond assuring himself that our documents were in order for New Guinea. We had seen to this in New York, I could have told him so over the phone. There has been placed on the waterfront, so our cargo should now be safely in Lae.

Van remains in Sydney for a couple of days as guest of Allen Keast.

Wednesday, March 18. After some personal business visited Queensland Herbarium in the morning. Selwyn Everest (Govt. Botanist) north in the Townsville area to inspect an infestation of "Chinese Apple" (Zizyphus Talked with Stanley F. Blake and Lindsay Smith. Herbarium much overcrowded. Bulk of collections piled high in "Merrill" boxes in racks. Tops of most cases in the museum room crowded with bundles of specimens. But I could smell naphtalene 20 yards from the building as I approached through the Botanic Gardens. A new fireproof wing houses the most valuable books and the type specimens. The very numerous type specimens still being segregated. Now a staff of 14, including a graduate librarian, and two full-time mounters.

Blake's small office more crowded than ever with specimens and reference material. Just a small hole on one table on which he works, and a clear spot on another for his microscope. His big work on the revision of Melaleuca was about ready for publication when field work in the Cooktown area a few months ago upset some of his conclusions. The widespread "M. Leucadendron" is properly M. quinquenervia (N.S.W. through Queensland to New Guinea and New Caledonia). Blake has recently asked to be relieved of his undertaking to revise Scleria for Flora Malesiana; too busy with other work. One of his current projects is the revision of Plectranthus in the Australian and SW Pacific area, of which he has perhaps 8 or 10 species in cultivation.

Blake critical of recent trends in Flora Malesiana. Some recent work reflects too closely the personality of van Steenis (editor in chief). A tendency to take the easy course and lump species. Not enough research in the literature. Blake referred specifically to some recent papers on the Sapotaceae by van Royen and others. The story is that for work financed by Flora Malesiana, van Steenis, operating on a short budget, sets a time limit. Kern, for example, is racing through the Cyperaceae. He is now doing Carex, as van Steenis considers Nelmes' (the recognized authority on the group) species concepts too narrow. Kern will also do Scleria.

At the Queensland Museum in the afternoon and talked with Director George Mack and Chief Preparator Donald Vernon. Mack, as usual, very pleased with everything. Museum and offices in their usual spotless and speckless condition. Only recent field work has been digging for vertebrate fossils at Hughenden by Jack Woods. The small staff now busy with a Queensland Centenary exhibit to open early in June. Largely a photographic exhibit arranged on 21 2x5 ft. panels. An aboriginee's culture exhibit (in panel form, produced by the Australian Museum in Sydney as a traveling show which reached Britain and the U.S.A.) will be put on in the larger towns of the North Coast as far as Cairns, after showing in Brisbane.

Thursday, March 19. To Brisbane in afternoon to see Van who arrived by air from Sydney, and Everist at the Botanic Gardens, who came in from Townsville.

Had very little time to talk with Everist, who had two other people waiting to see him. However, on L.M. Parry's request I talked with both Everist and Blake about the delay there has been in Brisbane in the identification of my Cape York Expedition plants of 1948, the Perry's wish for names so that the duplicates can be distributed before her retirement at the Arnold Arboretum in February next. Blake says most of the monocots have been determined. Everist made a fairly definite promise to get the job done, but he has promised before.

At the Gardens to see me were Len Webb (formerly chemist, now ecologist with CSIRO), Bill Jones (plant collector for CSIRO) and Robert F. Thorne (Iowa State University). Webb's present work is in Queensland. Jones (a wizened bushman type whom I had not met before) expects to be sent to NE New Guinea later in the year to collect drug plants.

Thorne, a big, friendly, youngish man (from Gulfport, Florida; Dartmouth '41) is at the Queensland University on a fullbright Grant and also has funds from N.S.F. Formerly Secretary, Plant Taxonomists Society. Interested in systematics and relationships of the higher plants, especially the primitive (etc.). Hopes to visit both New Caledonia and New Guinea later this year.

Thorne told me that the American Consulate in Brisbane, closed for years, was re-opened about a week ago.

Friday, March 20. The Fred Laceys drove me to Towomba to visit my Uncle Alexander Andrew (89) and Aunt S.E. Andrew (86). Returned to Hawthorne after dark.

A flare-up yesterday and today of an "indolent strep throat" which has been with me since January 9. Heavy treatment with antibiotics and sulfa drugs for 7-8 weeks in Florida failed to move it. Same can be said of a daily dosage of a million units Penicillin and two million units Albamycin for the last 8 or 9 days.

Australia has a new market for old cow and bull meat. It is being butchered and sold in quantity for hamburgers in the U.S. (West Coast) ? High prices are being paid for this rubbish, and since the trade started, about 8 months ago, all cattle prices have bounded up.

Saturday, March 21. To Brisbane in morning to do odds and ends of small shopping - including tissue paper for the drying of big, delicate flowers, which I forgot while outfitting in New York. Learned that my exposure meter case, lost when seating in our plane was rearranged in San Francisco, has been recovered and should reach me in Lae in about 5 days.

In Woolworth's I was amazed to see staghorn ferns (Platycerium grandis), elkhorn ferns (P. alcicorne), and rock orchids (Dendrobium speciosum) on sale. Well-grown, no doubt wild.plants, somewhat knocked about by careless handling and stacked on a counter. The orchids were priced at 4/11, an 18-inch staghorn fern at 9/-. I thought such ornamental native plants were protected by law. The 1948 Archbold Expedition was given special permission to collect orchids.

Sunday, March 22. Left Brisbane 1:35 AM. by Qantas Super Constellation and arrived Port Moresby 6:35 AM. Smooth trip. Plane by no means full. A dull, threatening morning at Port Moresby. Mountains of the interior loomed high and black as we approached the coast from the Coral sea just after dawn, and we slipped into Jackson Airport from the Bootless Inlet side under a thin low bank of fog. At airport to meet us were John Womersley and Lorrie Edwards of the Dept. of Forests, Dr. Dorothy Shaw of Dept. of Agriculture, and Allan Willis. Willis was transport man on our Fly River Expedition in 1936; now Plantation General Manager for Steamships Trading Co. Not knowing that this time we are under the official wing, and learning somewhere that we were to arrive today, he was good enough to check hotel reservations for us, mention our coming to various friends, and get up early to meet us at the airport some 6-8 miles out of town.

We found awaiting us, in charge of Willis, two of our boys (Kim, #1 cook and Liklik, mammal boy), recruited by Dusty Miller of Samarai. However, we have the disturbing news that our cargo from New York, which reached Sydney on the Pioneer Isle February 16, has not arrived in Lae. Further, John Womersley tells me, Buntings, our agents in Lae, have not received shipping documents which were sent from New York by registered air mail on January 5.

After Womersley and Edwards had breakfasted (Van and I had on the plane, at 5:30 AM., as we watched the day dawn, a substantial breakfast of canned orange juice, fruit cup (canned), cornflakes, and fried fish), we went sightseeing in an official car with native driver. Drove around the back of the high ridge immediately behind the town, and up its slopes to a quarry in a saddle which eventually will be dug down to form a 350-ft.-deep road cutting through the ridge,

and from there climbed perhaps a couple of hundred feet to the summit. Fine view westerly across Konedobu (official quarter), Hanuabada (native village), and landlocked Fairfax Harbor.

All of our morning excursion was in savanna of Eucalyptus alba, E. confertiflora, and E. papuana. A heavy body of Themeda australis and minor grasses which, under changing conditions, now are not burnt every year. Government tries to prevent burning of the savannas close to the town, and although population has increased tremendously, I saw no sign of recent woodcutting. Presumably due to these factors, the older eucalypts appear to be increasing in size, and young trees occur in abundance. Monsoon forest (mainly on the coastal slopes) is recovering after having been cut into for gardens. These for the most part are gully forests. They may be encroaching a bit on the savannas.

After lunch we were joined by Dorothy Shaw for an excursion about 30 miles inland to about 1800 ft. on the Sogeri Plateau. There Eucalyptus tereticornis was principal tree in open savanna forests on rich-looking red volcanic soil. We drove first through coastal showers, then ran into a heavy thunderstorm on the plateau. Stopped at a secondary school for natives, a mile or so beyond the beginning of the Kokoda Trail, and a little short of several prosperous Para rubber plantations.

Between the mountains and the coast, on the return journey, we turned off the main dirt road to visit Bomana Cemetery of World War II. All Australian graves, apparently. Close rows of small white marble headstones. Shady, planted trees, and well kept flower gardens.

Had our hosts to dinner at the hotel.

Monday, March 23. Day spent at Konedobu on official business, accompanied by John Womersley, who has been appointed liaison officer between us and the Administration. Talked first with W.R. (Bill) Suttie, Acting Director of Forests since the recent death of J.B. McAdam. Others called upon were A.A. Roberts, Acting Director of Native Affairs; Charles Julius, Government Anthropologist; R.E.P. (Larry) Dwyer, Director of Agriculture; Henderson, #2 man in Agriculture; Dr. J.T. Gunther, Assistant Administrator.

Gunther (formerly Director of Public Health) looks sick, and his hands and face worked nervously. His lower front teeth had gone, and so had a shirt collar button, leaving a dangling bunch of threads a couple of inches long. A very capable and alert man, nevertheless. Interested in our work, especially the collection of ectoparasites for the U.S. Army Medical Research Units, and of blood slides of mammals for Dr. Mackerras of the Queensland Institute of Public Health. Told us that research on Kuru Disease ("Laughing Death") of the Central Highlands has been resumed by Dr. G. Carlton Gajdusek and Dr. Zigas, and that geneticists are being called in on the job. Officially, we are in care of the Department of Forests. Womersley's help in formulating our program, and getting around and under the ropes, will be invaluable. We have been given base storage and working space at Lae. When space is available, we have free transport of cargo and personnel on government-chartered aircraft. Gunther told Womersley as we walked out that he had "carte blanche within reason" to make special arrangements for our assistance.

Julius touched on the controversial subject of Mme. Ingeborg Beausacq, from the U.S.A., who has been collecting objects of primitive art, mainly on the Sepik River, on a second visit to New Guinea. Recently (January ?), while Julius was away on leave, she was given export clearance on "thousands" of pieces. She claims connection with the Museum of Primitive Art in New York, but is considered plainly a commercial operator. Further to this, I was told (by Bob Bunting in the evening) that Beausacq was given to talking of the profits she would make on the sale of

her collections in the U.S. As a result of her operations, an ordinance was recently passed to prohibit the commercial collection of objects of primitive art. Scientific collecting will not be affected. Julius himself is not in favor of valuable or very rare objects being kept in the government collection in Port Moresby. He feels they should go to institutions in Australia, U.S.A., etc. where they can be properly stored and be available for study.

By radiophone, through his assistant in Lae (Ken White), Womersley made inquiries about our "lost" cargo. It was not on the Malekula which arrived in Lae from Sydney today. Buntings of Lae had not made inquiries of their Sydney forwarding agents as to the whereabouts of the cargo, but have been asked to do so by radio. Further, they have done nothing about recruiting boys I asked for in a letter some weeks ago. Through the inefficiency of Martin, the manager, or his assistant, we are in a bad mess. No other ship is due in Lae until about the end of next week. Womersley tells me we could not expect to do better by switching our agency to any other Lae firm.

Van and I dined with Alan and Winks Willis at their beautiful home high on a slope overlooking both the open sea and the harbor. Other guests were Claude Champion (2 i/c Civil Affairs Dept.) and E.V. Crisp (General Manager, Steamships Trading Company), their wives, and Bob Bunting (head of Buntings and A.H. Bunting Ltd.). All old timers.

Told Bunting of our situation with his Lae Branch. He will have one of his Lae staff delegated to handle and be responsible for all matters pertaining to us. Also he has very generously offered us a house to live in in Lae, complete with laundry boy.

During the day I attended to the duty-free entry of our cargo, and Van and I registered as aliens, as required by law.

Ken Slater, recently resigned Animal Ecologist and a correspondent of mine, left in Port Moresby, as a gift for us, several live cuscus, a pair of live Sminthopsis, and living and dead specimens of a big freshwater turtle, Carettochelys insculpta, from the Fly River (the latter minus head, which was sent to someone in Europe). Van busy on these specimens this afternoon.

Tuesday, March 24. Called first at Steamships to see Willis to give him some New York flower seeds for his wife. Later talked with Clem Rich there. Clem in town from the Samarai end to make application under a new government measure whereby veterans of foreign wars are eligible to get grants up to £25,000 for the acquirement and commercial development of land. Clem, a son of L.M.S. missionaries, and former Acting Resident Magistrate in Papua, was a drunkard for years. Has now been on the wagon for two years (according to friends), and looks as bright as a new shilling.

Womersley and I saw Administrator Cleland in afternoon. A short interview made purely as a formality. Cleland has never shown any interest in our work, and is reputed to be no more than a figurehead. Was pleasant enough.

Dorothy Shaw seems well satisfied with her job as Plant Pathologist. Has accumulated a considerable library of reprints since my visit in 1957. A 30x12 glasshouse is now being built for her. New fungus diseases, for this part of the world at least, keep turning up. In last Sunday's collection was a fungus disease previously known only from West Africa.

Joe Szent-Ivany (Entomologist) has been seriously ill, and looks it.

Womersley and I were invited to the Papuan Club in the afternoon for drinks by Alan Willis. A number of familiar old faces there: Jimmy James, Alan de Groen, Bernie Ryan, John Gunther, etc.

Van, Womersley, and Harrie Niall District Commissioner, Morobe (Lae) District at the house of the David Feinbergs after dinner. Feinberg returned late in 1958 after 2 years as P-NG liaison officer at the United Nations, New York. One of the bright younger men of the Department of Native Affairs. Met him at the Museum a year or more ago.

Great influx at the hotel of passengers from a Qantas Constellation plane en route Hong Kong which had engine trouble an hour after refuelling at Port Moresby and dumped 20,000 gal. of gasoline before landing. An Indian princess in sari, 5 Russian diplomatic personnel, and sundry other nationalities and colors.

Wednesday, March 25. Left Port Moresby at 8:15 AM.on a Qantas D.C. 4 plane and arrived Lae at 9:20. A smooth flight with fair visibility on the south side of the main range; most of north side clouded over. Mt. Victoria stood top clear, black, and cold in the early morning light. The summit peaks of Mt. Albert Edward were hidden by cloud, but I could recognize the broad, partly grassy range top between the mountain and Murray Pass, which we traversed in 1933 on the First Archbold Expedition.

Upon arrival in Lae we were met by Martin, manager of Buntings, our agents, and Wood, manager, Bank of New South Wales, waiting at the airport. Martin had a sorry tale to tell about our cargo. He had just received a radiogram, "Pioneer Isle consignment Archbold bonded Sydney pending customs clearance..." Our cargo was on a through bill of lading and marked "Archbold Expeditions, C/- Buntings, Lae, via Sydney, Australia." There was no possible excuse for its being held in Sydney. Customs clearance on such a consignment is a matter for the Collector of Customs of Papua-New Guinea. Equally unbelievable was the inertia and neglect of Martin in not inquiring about the cargo when it was delayed. I wrote him twice from New York asking that all measures be taken to expedite its forwarding from Sydney. At least four boats on which the cargo could have been shipped have arrived in Lae during the last couple or three weeks. It is to be loaded on the Shansi, due to leave Sydney on April 3 and arrive here April 16.

A minor blow was a mess made in England in the shipment of our .410 ammunition. We ordered, and were invoiced with, 1200 rounds of 2½ inch dust shot cartridges. On opening the consignment this afternoon we found we had:

200	.410 Dust 2½ inch
500	.410 Dust 2 inch
120	.300 H & H Magnum rifle shells
140	.243w Norma solid point rifle shells
10	.243 " hollow point

This from a solid old firm established at least 100 years ago (Cogswell & Harrison, 168 Piccadilly). Probably the big game hunter was just as wrath as I was when he opened his case and found he had .410 shot gun shells instead of the high power rifle ammunition he ordered. We are having two aux barrels made at the Technical School in Lae and should soon be able to test the 2-inch shells on bats.

On the good side, we found awaiting us at the airport John Collins, a clean-looking, frank type of young man who will be our transport and supplies man. We are assured of all the resources of the government in getting together an outfit with which we will be able to carry out what must necessarily be a somewhat limited program of field work during the three weeks we will have to wait for our cargo. A big, ventilated storehouse has been placed at our disposal as working quarters and repository for collections (a Department of Forests building in the Botanic Gardens). We have the two experienced boys who joined us in Port Moresby. And here, in Lae, good, generous Bob Bunting has given us a fine 2-bedroom house to live in, well furnished and equipped and complete with a laundry boy-caretaker.

Myrtle the Turtle (the name of our 40-pund Carettochelys insculpta now has from a limerick told by waggish District Commissioner Niall), well impregnated with injected formalin and concealed in a sugar bag, accompanied us as air baggage on the flight from Port Moresby.

Our 109-inch wheel base Land Rover, ordered through Buntings three months ago, was ready for delivery by the suppliers -- or so they thought (Suppliers are Burns Philp (New Guinea) Ltd.). But it was fitted with conventional tires instead of the mud-grip (locally, "bar-tread") type I ordered, and the canvas hood over the body was of the wrong type. We have the vehicle, at any rate, and are promised the right fittings. We also have a 6'3" x 4' 3" trailer. The Land Rover is fitted with a spotlight. A power winch ordered was not available.

Thursday, March 26. A busy day as a result of which, and partly from yesterday's activities, we have the Land Rover registered and insured (third party insurance is compulsory), Van and I have local driver's licenses (issued by the police on presentation of our American licenses and payment of a ten-shilling fee), Van has authority to operate the Lae ban account (Bank of New South Wales) in the event that anything should happen to me, Buntings' customs agent (E.B. Davis) has instructions to ensure by radiogram that our cargo actually is loaded on the Shansi, the Land Rover is fitted as we want it and a few small rust spots from the salt air painted over, Van has a string of mammals skulls hanging in Womersley's plant dryer, a message has gone out for boys (two botany boys, 1 mammal boy, and a No. 2 cook), Van and I are booked for a two-day aerial reconnaissance under Womersleys guidance and at government expense next Tuesday and Wednesday, we have some field clothing, Van has a pair of boots, we have had a talk with John Gunn of the Customs Office, an enthusiastic and rather impractical young man who for two years or more has been collecting live reptiles and mammals for the Melbourne Zoo, etc.

The buying of field khakis took up much time. Buntings here is little more than a grocery store. At Burns Philp's big store we were shown mostly shoddy lines, selling at high prices, and little that they had would fit either Van or me. For trousers, we ended up by driving down to China Town and being measured by a Chinese tailor at three pounds a pair. This price less by 15/- the cost at B.P.'s of the poorly fitting garments of which Van and I took one pair each for immediate use. Only one line of very poor, heavy-soled ankle boots was available in town, so we had to buy a cheap sort of white basketball shoe. When our plight in this became known to Fred Towner, Acting Superintendent of Police (who carried a major's crowns on his shoulder straps), he invited us around to his office and Van van came out with a nice pair of police officer's issue boots. My feet are smaller than pliceman's size, so I shall have to get along with the basketball shoes.

In the evening we were the guests of honor at a barbecue given by John and Mary Womersley at Henty's cocoa plantation about 6 miles out of town on the Markham Road. Thirty or more guests there, mostly government personnel and planters (cocoa and peanuts) and their wives. The whole thing very well done on Henty's spacious oval lawn, were a long canvas-covered shelter was rigged as insurance against rain. A boy in white rami cooked hamburgers ("tucker belong America") and sausages ("tucker belong Australia") on an open fire at a proper distance from the comfortable rattan porch, chairs arranged on the lawn. The planters I talked with all seemed very capable, active men with reasonable confidence in the future and their ability to make a success of their ventures. Ted Henty is a descendant of the first settler in the State of Victoria, in Australia. I'm told that a few years ago, while an officer of the Department of Agriculture in New Guinea (Animal Husbandry), he inherited the last of the family ofrtune, and put it into cocoa planting. To help things along until about May, he harvests his first crop, he has been employed as Agricultural Botanist attached to the Forests Department in Lae.

Good Friday, March 27. A day at paper work for me. Van worked in the bulk shed and tonight has out a dozen rat traps (from the Department of Public Health) and a mist net set for bats in the Botanic Gardens.

During the day John Gunn dropped in with well,pickled specimens of a yellow-eyed lizard and two young bandicoots. The lizard has several rows of prominent processes on the back. The bandicoots are bristly and probably Echymipera. Gunn brought his wife and young daughter Sylvia in the evening. Mrs. G. as keen on zoology as her husband. In the morning he will be going to the "bung" which is held in town for native produce Saturdays between about 5:30 and 7:30 in the morning. Natives often bring in snakes, etc. to sell to him. Womersley, who is building up a small collection of live animals in the Botanic Gardens, is sour on Gunn for paying much too much to the natives for what they bring in. £2/10/- for instance for a tree climbing kangaroo. That is 7 or 8 dollars.

Have written the Museum about insurance for John Collins; Cogswell & Harrisons in London about the mistake they made with our ammunition. Tests by Van with one of our new aux barrels today gave good results with the 2 inch x .410 shells and we will be able to use them for small bats.

I neglected to record in Australia that in Brisbane Van met Dr. Margaret Mackirras and Dr. Dorothea Sanders of the Queensland Institute of Medical Research and offered to collect blood smears for the former (all groups of mammals) and viscera of marsupials for the latter. Dr. Mackirras is well known for her work on the blood parasites of mammals.

Saturday, March 28. It is said that most of Lae's ample rainfall of about 180 inches falls at night. Last night we had a considerable amount. And Van, who wrote letters to a late hour, left all the doors of the house open when he went to bed. Result, about 2:30 AM I was awakened by mosquito bites. Scores of them, gorged with blood, were resting on the walls of my bedroom, but there were no anopheles among them. I'm told that for years the town and its environs have been fogged with chemicals as a malaria control measure. Have heard several remarks on the mosquito pest now evident in the town.

Lae

Goo One Syconycteris in Van's bat net this morning; nothing in his 12 traps baited with sweet potato. Some traps sprung by rain or the giant toads (Bufo marinus) which one sees at night in considerable numbers. The Japs are credited with the introduction of the giant toad during World War II. It would seem more likely that they reached here in cargo from Cairns, where the animals, introduced to eat beetles in the sugarcane fields, have been a bad pest for years. According to Womersley, the giant toad population is in balance in the Lae area. They are not especially numerous, and they do not attain large size (about 4 to 4½ inches). The pidgin name for them is Rok-rok, from the sound they make.

In the morning while Van put away some geckos he collected in our house last night, I took a walk in the Botanic Gardens with John and Mary Womersley. A goodly amount of development has taken place, and plantings greatly increased, since I saw the gardens in January, 1957. Mass plantings of epiphytic orchids have been made outside, in the vicinity of a large slathouse (locked, and boy away with the key, when we where there); collection of Vanda spp.; many Dendrobium veratrifolium; scorpion orchids from Singapore, tec. A small artificial pond in a ravine (the bottom of which fell out during a "guria" (earth tremor) a year or so ago), and a dammed stream on the flat, contain introduced Nymphaea spp., and indigenous Nymphoides and submerged aquatics which have come in by natural means. Large, roofed cages or arc mesh wire contain a tame, friendly, and well plumaged young hornbill, several Dendrolagus matschei, several Phalanger maculatus, several goura pigeons of the variety beccarri (white-tipped plumes), two or three specimens of a variety of Paradiseae minor, and at least one specimen of another bird-of-paradise. Two or three mornings ago a male of the "other" bird-of-paradise (Princess Stephanie's), which had been caged with a male of P. minor, was found dead, with a cut across its throat. In this connection, John Collins says that at the Hallstrom Wildlife Station at Nondugl, on the Western Highlands, F. Shaw Mayer has found that birds of paradise, if caged more than one species together, fight to the death. This may have happened in the Lae Botanic Gardens.

Later in the morning we drove west approximately 10 miles along the Bulolo Road and there crossed the Markham River on a wartime steel Bailey bridge 1700 feet long. The Markham running turbid in low flood. A shallow, rapid stream with several channels around low silt islands. On the far bank we met a taxi load of young white men out on a sightseeing tour. One was John Howlett, Patrol Officer stationed in the Mt. Hagen area; a West Australian returning from home leave. Has undertaken to collect mammal study skins and skulls for Ride of the West Australian Museum, and material of Nothofagus for someone else in W.A. who is interested in anatomical and morphological comparisons with fossil materials of the genus discovered in W.A. (or so I understand).

Our drive to the Markham was for the purpose of selecting more trapping sites, and sites for bat shooting in the evening. At Kelly Bros. place, about three miles out from Lae, I collected three spp. of hepatics and a moss from the bases of trees. In secondary rain forest on the east side of the Markham flood plain I collected good flowering and fruiting material of an apocynaceous vine. These are the first gatherings for the botanical collection.

Having no tow or cotton batting with which to stuff the bat he took from his net this morning, Van utilized the seed pod fibres of a planted balsa tree in the Botanic Gardens. A springy brown fibre which worked well in the small Syconycteris.

Lae

I started the invertebrate collection with a blackish wire worm, and a big beetle well infested with mites, taken on the ground in the Botanic Garden. I expect insect collecting supplies from the local Department of Agriculture experiment station, but have yet to receive them.

Gave the cook the evening off and had dinner at the Hotel Cecil, on the beach. There we met Jim Lewis, of the U.N. staff in New York, who arrived earlier in the evening with a U.N. Mission on a tour of the Western Pacific Trust Territories. Jim a bit fatter of face than a year ago, and jaunty in a figured blue sports shirt. He introduced Sergio Kociancich, from Trieste and representing Italy on the mission. On its tour in eastern parts of the Trust Territory of New Guinea, the mission was met by various native delegations. For example, the dissident Tolai of New Britain asked that their area be taken over by the United States, and delegations from one or two other groups did likewise. On Monday, the mission will be taken to the Kukukuku country at Menyamya. This no doubt a bit of window dressing on the part of the Administration, designed to show the beneficient, taming influence of the government. The cannibalistic little "Kuks" are one of the most untamable people in all New Guinea, but for some years now it would seem that they have been amenable to control in the area about Menyamya Government Station. Kukukuku ist not the proper name for this numerous tribe. It is the Motu word for excrement, given to members of the tribe who raided parts of the coast of the Gulf of Papua where the Motuan people of the Port Moresby coast conducted their ancient annual trade with great, multiple, crab-claw sailed canoes called lakatoi (see design on the present one-shilling postage stamp of Papua-New Guinea). Kukukuku is also the Motu name for the black sticks of trade tobacco of the white man.

Sunday, March 29. Have heard remarks about the heat even from local residents during the last two days. Temperatures have not been very high, perhaps, and this afternoon there was a breeze, but humidity is high, and on the side of our house from which some of the breeze or air movement comes there is a 15-foot, very dense hibiscus hedge to give privacy from one of the single men's quarters of the Administration. The SE wind movement of the tradewind season began about the beginning of the week, we are told. The SE season is the wettest season in Lae. Inland, the seasons are reversed, and most of the rain is brought by the NW monsoons.

At Kelly's farm, about 3 miles out on the Markham Road, Van shot two dusk-flying Scoteinus. He and John Collins, working with the spotlight of the Land Rover, were out until about midnight. They saw and heard many flying-foxes (Pteropus) feeding high in trees of the Markham floodplain forest, and smelled cuscus, but were unable to shoot anything. Young Jonathan Womersley proudly contirbuted a Rattus norvegicus trapped in the Womersley boyhouse.

In the Botanic Gardens this morning I collected from the dead tree-fern stem supports of the outside orchid collection, 10 species of mosses, all but one of them fertile. One was almost certainly Octoblepharum album, which we have in Florida. At least as many sterile species were seen, and will be collected later.

Recovered from Qantas my exposure meter case, which was taken out of our plane in San Francisco when seating arrangements were changed. The case was in the pocket of a seat which was removed from the plane.

Lae

Called at the Gunn house in the morning to see their live animals. The prize piece from our point of view was a fine female of the graceful gazelle-faced wallaby of the lowland rain forests, Dorcopsis muelleri. The female had a young in pouch, which we did not see. In 1953 we collected on the Kgaria River in Collingwood Bay the first and only specimen of the species recorded from the north side of the main dividing range of the island. It was not known to occur in the Mandated Territory. Gunn does not own the animal we saw. It belongs to a neighbor, who will not part with it. The animal was bought from a native, and the place of collection is uncertain. The father of the young one was sent to the Melbourne Zoo.

Gunn also had in a two-section cage in his back yard shed, at least four species of snakes including 3 or 4 showy green tree pythons and a curious slender gray species between four and five feet long and with conspicuously large scales and pale brown head. This strange snake was watchful, and Gunn was wary of it, though not knowing for sure whether or not it was venemous. With only a straight bit of stick picked up casually in the yard, Gunn poked about in the cage and brought out a green goanna and a young python to give to Van. He needs proper training in handling reptiles. For me, Gunn had an assortment of big beetles, a stick insect, a scorpion, and a heavily built brownish centipede in bottles and vials.

Had the Womersleys and Jim Lewis in for drinks, and Lewis for dinner. Lewis quite a raconteur on experiences on U.N. missions. This is his fourth visit to New Guinea. His first was in 1950, when he spent 5 days as a one-man U.N. party at the livestock station of the Department of Agriculture on the Baiyer River, Western Highlands. Porter was in charge of Baiyer then, in the absence of Jock MacGregor. It is at Baiyer River that our John Collins has his coffee plantation, at an elevation of 4400 feet. Both Lewis and John spoke of the extraordinary abundance of death adders on the broad grasslands of this valley (the Baiyer flows to the Jimmi and the Yuat to the Sepik). Recently, John mowed a patch of not more than an acre with his tractor and 17 adders were killed. The livestock station pays a bonus or bounty of 2 shillings each for death adders brought in. Last year over £400 pounds were paid out, which means 4000 adders. The adders are only on the flat lands. They disappear with a rise of only about 50 feet on the slopes of the valley; a nice problem for an ecologist. John has killed death adders on his property up to 4 ft. 6 in. length.

Monday, March 30. A very hot day with only fitful breezes from the Markham Valley. The south east season definitely has not begun.

Last night a party composed of Van, John Collins, Gunn, and Bill Smythe went out jacklighting in the Land Rover. Got a late start and did not return until 2 AM. Result: 1 Pteropus of a small species, and three small Miniopteris. Three mist nets in the Botanic Gardens yielded the small, spotted Nyctimene sp. of the New Guinea mainland.

This morning John and I drove east of Lae about 14 miles to the Bunga River, traveling under the foothills of the Rawlinson Range and crossing the Butebum, Busu and Bupu. A timber lease between the Busu and Bunga is being logged by South Pacific Timbers. Saw two big caterpillar tractors which are used for loading the logs on trucks for transport to a sawmill at Voco Point, close to the east of Lae. An Anisoptera is one of the important trees of the Busu Lease. Little if any original rain forest left between Lae and the Busu; mostly tall grass and second growth forest. Even on the timber lease the forest is broken by extensive areas of grass. Most of the primary forest we saw was on rising to ridgy ground. A forest seemingly of fairly good quality. Many big trees. Conspicuously few palms; saw only some

Calamus and a solitary Caryota. Logging tracks make penetration of the forest easy, but the first of it is about 10 miles from town and therefore too distant for trapping or regular night hunting.

John Howlett spent the day taking skinning lessons on the bats. The man for whom he will try to collect Nothofagus(N. perryi) material is D.M. Churchill, a young man on faculty of the botany department of the University of Western Australia, in Perth. Churchill has been doing considerable digging for fossil plants in W.A. Also wants Banksia and Gleichenia material from New Guinea for comparative study.

Attended a reception at the Residency to meet the United Nations visiting mission (District Commissioner & Mrs. H.R. Niall). The U.N. delegates were Chiping H.C. Kiang (Chairman), Alfred Claeys-Bouuaert (Belgium), Tin Maung (Burma), and Sergio Kociancich (Italy). Kiang spent most of his time talking with members of Lae's Chinese community. Claeys-Bouudaert obviously a man of considerable stature; 30 years administrative experience in the Congo; until recently, chairman of the Mandates Commission of U.N. in New York. A touch of informality about the reception. Some of the ladies wore hats and maybe gloves, others had neither. Some men had coats, some did not; but all had ties. The U.N. personnel were coatless. Included among the guests, but keeping to themselves unless approached by Europeans (as they often were) were a number of native men, with glasses of lolly-water in their hands. For others, there was beer, Scotch whisky, and Australian rum. Native women and charming small girls carried around trays of very good hors-d'oeuvres. Met and talked with several interesting people.

After the 5:50 to 7 PM reception, we dined with the Womersleys. Listened to recordings of native music after dinner (commercial copies of records made by Dr. Bill Smythe). A more than full day for me before I got to bed.

Tuesday, March 31. Lae-Eastern Highlands

With John Womersley, Van and I took off from Lae at 7:30 am. on a Qantas 8-seater Otter plane (Captain Bill Taylor, Purser Peter Snelling) for a visit to the Highlands to reconnoitre for working localities. Trip as guests on a weekly charter flight of the government. The Otter a slow but sturdy biplane, made in Canada, with a cruising speed of 90-100 mph. Officially, our course was first to Arona, on the edge of the highlands about 75 miles NW of Lae, but Bill Taylor obligingly went off course to give us a view of Wantoat, in a secluded headwaters valley of the Leron River, in the Saruwaged Range, about 30 miles easterly from Arona. A patrol post at about 4000 feet in the Wantoat valley is strongly recommended by Womersley as a camping place from which we could work virgin country for mammals and an area from which the only plant collections are a few made by Womersley. The locality looks attractive to me, though primary forest (c. ½ mile from, and 500 feet above) is not as close to the patrol post as John stated. Most of the Saruwaged is precipitous, unstable country, with small villages perched high on the spurs. A big bamboo prominent from the air in forest second growths. Saw Tilapia fish ponds high on west slopes of Wantoat valley. Culture of these mosquito larvae eating fish is being pushed by government to provide needed proteins in the native diet.

Some remarkable alluvial fans and braided streams where feeders of the Markham debouch from the Saruwaged and flow across the broad grass plains of the Markham. Greatly dissected foothills of the Saruwaged, deforested and grassy, are said by Womersley to be of unconsolidated silt (must be several hundred feet of it);

my guess was volcanic ash. The broad plains of the Markham and Upper Ramu rivers, said to be gravelly, covered with kangaroo grass (Themeda australis) and for the most part treeless (some scattered trees said by Womersley to be Nauclea) are puzzling to me. Reading about them, I thought they must be secondary, following cultivation and deforestation by a numerous native population. The erosion pattern of grassy foothills on both sides of the Markham Valley suggest deforestation. The dry, flat, grassy plains of the middle of the valley are over large expanses without streams or dry gullies. Are these grassy plains climatic ? White settlement is perhaps too recent for rainfall records to tell much.

Our first landing was at Arona, 4000 ft., on the eastern edge of the highlands and on a feeder stream of the Ramu. An old-established livestock experiment station of the government here, in charge of John Cunliffe, whose wife, Pat, provided morning tea and coffee. Station of 3-4 thousand acres looks run down; carries only about 80 grade Shorthorn cattle and a few horses at present; government trying to sell it but area too small for commercial cattle raising, according to talk. Unloaded a pile of wartime Marsden matting and sundry packages, and took on a boxer bitch for service at Goroka. The Lae-Highlands Road, climbing the Dividing Range from the Markham Valley, reaches the top near Arona.

Next stop was at Aiyura, a flight of only 7 minutes. Another pre-war agricultural station, where cinchona was planted from seed flown out of Java after the outbreak of World War II. Cinchona plantings now neglected but for some improved strains being kept as a reservoir in case of a possible emergency. Aiyura now a coffee research station in charge of "Aub" Schindler. Also there is headquarters of the Summer Institute of Linguistics, some sort of religious organization concerned with carrying the gospel to the natives in their own language. Quite a job, considering the statement of some authority that about 500 languages are already known from the Territory of New Guinea. Activities of the Institute recently extended to Telefomin, near the Dutch border.

At Kainantu, 4 minutes from Aiyura, heavy rain had fallen and the strip was muddy. A Sub-District Headquarters of the Eastern Highlands. Has the distinction (?) of a small hotel built in anticipation of the opening of the Lae-Highlands Road. Goroka will then be a day's drive from Lae, in good weather. Rains are expected to make Kainantu a convenient day from Lae. Took on there Patrol Officer Bob Greeney, who as P.O. in charge of Esa'ala on Normanby Island in 1953, went with us to Goodenough and helped us find a route into the mountains. Bob now going on 15 months leave, and bound for England, with intention of driving across Africa from Dar-es-Salaam, then north across the Sahara.

Caught a glimpse of extensive alluvial gold mining operations by natives near Kainantu. Ten thousand pounds worth of gold reported sold there by natives last year.

Ran into clouds upon leaving Kainantu and had only glimpses of the ground to Goroka, reached in 20 minutes. Goroka, and next to it Mt. Hagen, are the principal airports of the Highlands. Average traffic at Goroka one plane every 10 minutes (but no night traffic here or anywhere else in eastern New Guinea). Largest planes operating are DC 3s and old 3-motor Junkers. The Junkers are pre-war jobs, described as "masses of spare parts flying in close formation". The story is that several of them were found in Sweden, minus engines, doors and windows, and with birds nesting in them. Fitted with Australian Wirriway engines, they land at about 35 mph and can use airstrips impossible for the livelier DC 3s. Goroka at 5500 feet.

Lae-Eastern Highlands

Finding that the Otter was going on to Chimbu, and had room for us, we left Goroka in her at 10:39. Quick climb over a narrow divide about 9000 feet high between Asara Valley at Goroka and the Wahgi waters of the Chimbu district. This mostly under cloud, but saw much good primary forest on the range (the Goroka-Mt. Hagen road crosses at about 8000 feet in good forest recommended by Womersley as a working locality) Chuave Government Station in the Chimbu is in limestone country so rugged that no place can be found for an airstrip. Some tremendous faces of partly forested white limestone. Bat caves ½ mile from Goroka-Mt. Hagen Road near Chuave being investigated as source of guano.

Landed at Chimbu (Officially Kundiawa) at 11 o'clock. A "one-shot" airstrip, on a short, flat-topped but rather steeply downhill-sloping ridge, with drops of several hundred feet at both ends. Headquarters of Chimby Sub-District of Eastern Highlands, in charge ADO Terry Dwyer. White population of 25, including one trade and a Lutheran Mission, but mainly government personnel. Combined European school, with blackboard and regular school seats, darts board and bar. 25 native police including a sergeant-major. Original thatched buildings largely replaced with structures of sawn timber, iron roofs, and glass windows. Inspected a new police dwelling (married) of 4 rooms, bathroom, and kitchen with quite big iron stove; fitted with glass louvres. At airstrip a sprinkling of men and women in old native costume, and loaded with pearl shells, etc.

Keglsugl airstrip (8300 feet, and reputedly the highest airstrip in the British Empire (it is the highest in New Guinea), which we propose to use for approach to Mt. Wilhelm in June, is in the Chimbu Sub-District. Dwyer gave us maps which will be helpful. He says 2/- is the carrier rate from Keglsugl to the lower lake on Mt. Wilhelm at about 11,000 feet. Chimbu rate for casual carriers is 3d per hour, and they feed themselves. Dwyer taking a patrol into the Keglsugl country late in May, and proposes to climb Wilhelm then. This will help us in June.

Left Chimbu carrying a patrol officer's effects, a sick native woman lying flat on the floor, bunches of bananas, and cartons of eggs and vegetables. Landed at Goroka 2 PM. Too late for lunch at the hotel, so Womersley called up the administration transport pool for a Land Rover for which he had wired ahead. Could not raise anyone in authority. Government vehicles lined up in plenty in front of the hotel, where Goroka was celebrating Easter Tuesday and beer was flowing. The District Commissioner reportedly in bed after a spree in Madang, on the coast, from which returned by air early this morning. We therefore hired a rattletrap old jeep from the garage and service station. Sans hand brake. All dashboard instruments out of order. No lights. Second gear having to be held in by hand. Still, with John's good driving, we set out for a sawmill on the south slopes of Mt. Otto about mid afternoon and got back to Goroka about nightfall -- 6:45 pm.

From Goroka's 5500 feet we drove 8-9 miles to an altitude of 7300 ft. at Kotuni Sawmill. Country to about 7000 ft. almost entirely deforested for gardening and either grassy or producing forest second growths. What the original forest was I do not know. From the bottom of the Goroka valley to Goroka town and up the slopes to about 6500 feet I saw no relic of the original vegetation. At about 6500 ft. a few Castanopsis trees appeared, Isolated for some reason in garden lands or lands recently cultivated. At that point, about 100 feet above the road in the narrow valley we were following, a relic forest patch was dominated by a gray-boled tree which Womersley said was Nothofagus. Where we

stopped, at a creek which had water too deep to be passable by a conventional motor vehicle, and too turbid for the bottom to be seen, I found, growing among rocks which must have been under water at high flood, two examples of one of the rarest known plants of New Guinea, namely, Coriaria sp., first found by Cuthbertson on Mt. Obree about 1875, I think, and sought by me, unsuccessfully, for over 30 years in New Guinea. I also saw there, ripped out and carried down by a flood, Equisetum, known from New Guinea but never collected by me, and in this example sterile.

Kotuni sawmill is owned by the Collins Bros. of whom our John is a junior member. Roderick, clad in tattered white shorts and shirt, and doing something with greasy machinery, met us when we stopped. Later, Michael, youngest of five or six brothers, drove up with a load of sweet potatoes bought somewhere down in the populated zone for the feeding of native labor. The mill, roofless, is expensively equipped with a Pelton water turbine fed with a fall of 180 feet. About 20 small, barked logs were on a gravity feed slope above the mill. These mostly Libocedrus. The timber lease has been nearly worked out in 7 years of operation. Tractor roads for logging have been put in up to about 9000 ft. The steep, unstable slopes make road maintenance difficult and expensive, and now a big tractor lies idle close above the mill, and logs are being manhandled down to the saw. Mostly Mt. Hagen boys employed. One of four of them who went down the mountain for diversion last night is missing and presumed murdered either by local natives or his fellow Mt. Hagens. The Hagens have been thieving pigs from the locals, according to our John. One of them may have met his desserts in native law.

The Kotuni locality on Mt. Otto looks promising as a working place for us. Much primary forest remains, and the extensive road system would facilitate our getting about.

Got back to Goroka at dusk -- 6:45 pm., tired, sunburned, and with nothing to eat but chocolate bars and morning tea at Chimbu since a 6:30 breakfast. Goroka Hotel, where we stayed the night, is in the usual crude Australian style as regards 2-person bedrooms provided with one glaring overhead electric light, no sink, inadequate closet space, coathangers made of baling wire, common bathrooms with hot water at night only. Food is poor. The Goroka coffee featured on the menu is probably made with salt and is without suggestion of freshness. Town now has a white population of about 500; the Eastern Highlands District has 340,000 natives. Electric power is from a hydro plant. The hotel bathroom water is muddy. I did not care to clean my teeth with it. Rain water for drinking.

Wednesday, April 1. Visited the Bunting store and bought woollen sweaters and surplus Australian Air Force jackets for our boys to wear later on. Warm clothing was ordered months ago from Buntings of Lae but nothing was done about it. Russ Webster, formerly of Samarai, is merchandise manager for Goroka Buntings; Ken James is overall manager.

Called on DC Seale in his office. Big, forceful man who has done great things in road building and otherwise opening up the district in three years here. About to be transferred to Rabaul to clean up a mess which has developed under DC Foldi, and some months ago involved the shooting of two Tolai natives of a crowd who were demonstrating against paying taxes. Seale now planning a motor or jeep road around Mt. Michael. Promises up maps of his district, after they are brought up to date.

Eastern & Western Highlands

Took off from Goroka at 9:25 on Qantas DC 3 on government "wilk run" charter; Captain Gus Swinbourne, 1st Officer Kingsley Roberts, Purser Peter Snelling. Very cloudy weather. Swinbourne kindly diverted well off his course to let us see the approaches to Mt. Wilhelm. Clouds hid most of the great mountain, but we had a good view of Keglsugl air strip and about 1000 feet of the slopes above it. Good forest and a big stream just above the air strip. An excellent locality for ourwork. Through a partial break in the clouds as we flew past the mountain to the south I glimpsed a great rockface, and beside it an extraordinary sharp pinnacle. We were flying at 11,100 feet.

Landed at Minj in the main Wahgi Valley at 10 o'clock; altitude 5500 feet. Craig Symons, ADO and formerly of Samarai, met us and took us to his house while our plane did a shuttle trip to Mt. Hagen with cargo. At Minj to meet us was Fred Shaw Mayer, former collector of birds and mammals for the British Museum and London Zoo and for some years now in charge of the Hallstrom Wildlife Station at Nondugl, across the Wahgi Valley (north side) and about 12 miles by jeep road from Minj. Much shop talk with Fred, who, starting on the Vogelkop in 1928, made 20 collecting trips into New Guinea and collected many new mammals.

Minj a flourishing sub-district station where most of the numerous natives seen wore the old string sporran and Cordyline backside cover of the Highlands, plus shell ornaments. Wet weather has closed at the Western Highlands today except Minj and Mt. Hagen. It is proposed to make Minj the central airstrip for the district and parts to the west and south, a function now centered at Mt. Hagen.

Gave Mrs. Symons a selection of choice flowers and vegetable seeds which I bought as gifts at the New York Flower Show just before we left the U.S. Most European garden plants do well on the Highlands. We left Minj with a carton of lettuce, cabbage, parsnips, carrots, beetroot, and string beans.

Left Minj for Mt. Hagen at 12:15 and landed 12:28. Had as passengers 10 pay-off natives each adorned with a single, vibarting cokatoo feather in his hair; some of them very sick before we set down at Hagen. Air rather rough, and not much to be seen for white clouds and dark thunderheads. Mt. Hagen is district headquarters for the Western Highlands i/c DC Ian Skinner, with whom we had our Qantas box lunch, well disguised and added to by Mrs. Skinner. About 50 whites here. A Seventh Day Adventist leper hospital about 7 miles away; staffed by the mission and financed by the New Guinea Government which has put in £10,000 this year; 450 patients; in charge of Dr. Yates, a sour, griping American from Montana. A Lutheran Mission in the neighborhood is in charge of a Canadian; leprosy is now called Hansen's Disease. At one time during our stay (during another shuttle trip back to Minj) five planes were on the strip, including three DC 3s, a Norseman and a small Cessna.

Skinner does not seem particularly popular. Coffee planting is thriving in the district. An expected harvest this year of 600,000 pounds of passionfruit, grown entirely by natives. Passionfruit in over supply this year on the Highlands. The pulp is flown down to the coast and thence shipped by sea to Australia for flavoring drinks and icecream. Natives of the Highlands in general are also planting a lot of coffee; native products expected to surpass the European plantation crop within a few years. One native last year was paid £1200 for his coffee crop.

Highlands-Lae

Weather looked very doubtful when we took off from Mt. Hagen at 3:39 but we flew into better conditions and had fair visibility to near Goroka, where we landed at 4:17. Weather rapidly closing in there and at 4:30 we made a hurried departure for Lae. Circled in rain over the Goroka Valley to gain altitude to clear Asiloka Pass to the north. Flew blind over this, then dropped down into the Ramu Valley. Weather bad here, too, and we went down low to get under most of the clouds. Flew over Dumpu airstrip in the Upper Ramu Valley, near which are some remarkable patterns of gully erosion on broad grass flats. Gusap, on the Ramu-Markham Divide, was a wartime aiffield and has a paved strip and roads. Nadzab, in the lower Markham Valley, was the principal wartime airfield, or group of airfields, and must have been a tremendous installation. The main bomber strip, paved and with Marsden matting at the ends, is kept in repair and is the best landing place in the Territory. The Lower Markham natives grow bananas as their staple food. Very big plantings on the alluvial fans of streams flowing down across the grass plains from the Saruwaged.

Landed at Lae 5:30 pm. The sun shining there, and streets dry. But the rain came to within a few miles in the Markham Valley.

Thursday, April 2. Got a rude shock when I went around to Buntings this morning. At first, Martin the manager assured me that our cargo was on the Shansi, due to arrive Lae on the 16th. Checking with Davis, the customs agent, I found that this was not so and instead, the stuff would be loaded on the Bulolo due to leave Sydney on April 10 and arrive here April 23rd. Feeling that the runaround had gone far enough, I got hold of Bob Bunting and we spent the whole morning on action to ensure that the cargo arrives on the Shansi. Davis, it developed had only been telling me half the story on arrangements he was supposed to have made last week. Instead of taking action himself, he put the matter into the hands of Burns Philp & Co., who own the Bulolo and other Islands ships. BP's in their well known octopus way (they are dubbed the "Octopus of the Pacific") promptly by passed the Shansi and booked the cargo for their own ship. Further, they refused in Sydney to hand over the bill of lading to Colyer Watson & Co., the Shansi agents. Urgent radiograms changed this. Finally, at about noon, Bob got through to a friend who is acting manager of Colyer Watson in Sydney and we have assurance that the cargo will leave Sydney on the Shansi tomorrow.

Afternoon spent on paper work. Dr. Bill and Mrs. Smythe came in for drinks before dinner, also the Gunns. Was impressed with the good behavior of the three children of the two couples. Bill is a remarkably brilliant and unconventional man: an M.D., pathologist, anthropologist, and linguist. Perhaps two years ago he was called upon to study the language of the Okapu people, where a mysterious"disease" called "kuru" ("Laughing Death" of the journalistic profession) has been under investigation for several years. After two months of field work he was ready to publish his results, but was refused the time to do the writing job and prepare his vocabulary. He says that politics have entered into the kuru investigation. The first phase of the work was done by an American named Gajdusek and a refugee European doctor named Zigas (in Australian or P-NG medical service). An effort was made in Australia to have Gajdusek excluded from work now in progress, and for men of the Walter & Eliza Hall Institute of Australia to take over. Gajdusek won the fight.

Friday, April 3. Van shot a small Pipistrellus at dusk last night. Nothing in traps in new sets some miles out along the Markham Road.

Lae

My morning spent on various items of delayed business in town. First called on Labor Inspector Norman Spence to learn the ropes with regard to employment of natives, and from there was taken to meet an ADO (Assistant District Officer). We are now registered as an employer of native labor, and in possession of a Casual Worker's Engagement Register. No bond was asked. Our permanent staff will be employed as casual labor, and receive pay when they ask for it. The old contract system is still in use for some long-term labor but the contracts are no longer binding under law, the natives know this, and nothing much is to be gained by going through the signing-on procedure.

Buntings of Samarai radioed this morning that Edewawa, my No. 1 flower-flower boy of the 1956 expedition has turned up in Samarai and I radioed for him to be sent here. John Womersley produced a very likely looking Finschhafen boy named Naton, and I took him on at three pounds a month and five shillings extra for Sundays worked. He will be my No. 2 botany boy. Also engaged, on trial, and perhaps not for long, a Fife Bay boy named as cooks assistant and general camp factotum. We now need only one boy to complete our planned crew of six.

A report has arrived from Dr. Patek of New York to the effect that nothing new was found in throat tests which were made just prior to my leaving New York. This morning I was examined by Dr. Jamieson, chief medical officer for the district, who gave a good report. I still have follicles caused by strep. infection, but the is no exudation, and by keeping the condition suppressed with 500,000 units of penicillin daily the thing may be expected to clear up in time. As in the United States, New Guinea has a present epidemic of streptococcus throats which do not respond readily to treatment by antibiotics.

We are preparing for a three-day trip up the Bulolo and Wau Road to examine the country and do some collecting.

The three of us, plus Naton and a Forestry boy named Salomon, left Lae in the Landrover at 2:20 pm on a reconnaissance trip to Bulolo and beyond. John Womersley and his family left after the children got home from school and overtook us at Patek Creek, not far below the Zenag Divide. We arrived at Bulolo and put up at the Pine Lodge Hotel at 5:30. Alt. 2300 ft.

Examined country on way for possible camp sites. Best seen for a lowland camp was at Mark Schultz's unoccupied house, 23 miles from Lae and at most a couple of feet above sea level (a Forest Department aneroid on loan seemed unreliable). Another possible lowland site at The Bends forestry camp, five miles farther on. Gurakor at 2000-2200 feet a good foothills site, though the country generally steep and scope rather limited in consequence. Best camp site there would be a Public Works Department road camp, but this at present occupied by three men and not available to us. Close to this is a small coffee property belonging to one Pappy Duff, with a small thatched shack and a cook house, which could be made into a camp by rigging a work fly and a fly for the boys to sleep in.

The Pine Lodge Hotel, leased now from the Bulolo Gold Dredging Company, has a good table for this part of the world, but the accommodations have deteriorated since I stayed a night there in January 1957. Van and I in a room with one chair for the two of us, a tattered floor mat, service bell and porch light out of order. No glasses or drinking water until long after we arrived, dusty and dry from the road. The toilet paper is completely non-absorbent (the Goroka Hotel has the same brand). A motel-type of place with 2-bedroom cottages, each bedroom with toilet and showerbath.

Lae-Kaindi

Saturday, April 4. Called at the Forest Office after breakfast and there met Joe Havel, Forest Officer in charge of all operations here. A Hungarian who received most of his education in Australia and is a graduate forester.

Left Bulolo at 8:45 to drive to Wau (19 miles), where Womersley left his car and we all piled into the Land Rover to within a mile of Edie Creek. There we started up a new road leading to an ultra short wave radiophone relay station on the top of Mt. Kaindi, at somewhere about 8000 feet. Road very muddy in places, and rutted by rains, but by putting chains on the rear wheels we managed to go between 1 and 2 miles, where ground which had slipped from above blocked us. Altitude by aneroid 6700 feet. Rain began at that time (noon) but we ate a hamper lunch in the Land Rover or standing under raincoats, and did some plant collecting, before slipping and sliding to lower levels on the wet, yellow clay of the new road. A rather numerous work gang scattered along the road proved to be Kukukukus from the Menyamya area. One man was in the traditional grass skirt and bark cape; the rest in calicos of one kind or another issued by government, which employed them. They were a cheerful, friendly lot. Ran behind the Land Rover as we went down the road.

Good tall forest above the Edie Creek road apparently dominated at least in places by Nothofagus grandis. Saw some big Phyllocladus, small Dacrydium falciforme, and many tress unknown to me or to Womersley. Could not see much fro rain; and my field glasses are in the cargo from New York.

From the Kaindi road junction we drove to Edi Creek, famed as a gold mining center in the 1920's, and stopped on the far side of a bridge across the creek, where Womersley said the negotiable road ended (in World War II a jeep road was put through from Edie Creek to Bulldog on the Lakekumu, in Papua, to where small vessels can ascend from the Gulf of Papua. We were on the beginning of that road). Several small houses scattered on the slopes around about appeared to belong to absentee white men. A sizable house on the slope above where we parked, and under which we sheltered from rain, was owned by a gold mining company. All the gold mining here was placer workings. The lower slopes and the main creek and gullies much altered in consequence. Very rich gold was got here -- as much as 300 oz. in one day from one claim. In the old days, the Kukukukus occasionally raided the diggings. A few boxing claims still being worked by teams of flannel-shirted boys, employed by white men who come up from Wau occasionally to collect the gold. Photographed one team at work.

Nothofagus forest still caps the ridges at Edie Creek. On clayey slopes, stripped in mining operations, are open shrubberies of a yellow flowered Vaccinium, Rhododendron (5 spp. seen, all sterile), and a tall inconspicuously flowered orchid of epiphytic type.

Collected a few plants back along the road to the "Lookout" at c. 5000 ft., from which one has a grand view of the Wau Valley. A beautiful little, prostrate, violet-flowered Pratia plentiful on rock faces. Two Begonia spp. (one with pink, the other red flowers) and an Impatiens were local in moist recesses on the roadside.

Sluicing and reef mining for gold still goes on at Wau. A sawmill cuts about 3 million super feet of Klinkii Pine a year. Wau is about on the upper edge (3600 ft.) of this fine softwood tree.

Lae-Kaindi-Bulolo

Wau has a famous sloping airstrip, dating from the early days of gold mining in this territory. It was at the bottom end of the strip that the Japanese were stopped by Australian troops on their way in from Salamaua, on the coast, by way of the old pack track known as the "Skindewai track" from a bark house on the route. The Australian troops were flown in to Wau and Bulolo strips. They were still being landed at Wau as the battle went on in a coffee plantation at the lower end of the strip. The Allied command had little hope of stopping the Japs here, so Bulolo town was burned, and the gold dredges and hydro power plants put out of action.

The Wau Valley perhaps four miles across and more or less circular. A surprising occurrence in this steep mountain country. Bulolo Gorge, between Wau and Bulolo, carries magnificent stands of tall Araucaria klinkii (= A. hunsteini fide Womersley). It seems likely to be preserved as a memorial to Jim McAdam, first Director of Forests in Papua-New Guinea, who died recently.

Only one dredge now working (round the clock) in the Bulolo Valley -- the last of eight, specially built for air transport in up to 3-ton pieces and flown in from Lae in lumbering Junkers planes. This dredge seems to have a fairly large area of ground ahead of it.

Sunday, April 5. The morning spent in the forests of the timber concession area, and on the clear-felled and reafforested areas on the slopes above the town to an elevation of about 3500 feet. Good access roads, well passable to an ordinary motor car, lead all through the forest and the planting we were in. Klinki Pine, at the rate of 12 million super feet a year, is being cut in these forests. Red cedar (Cedrela toona), Podocarpus and perhaps a few other valuable trees are cut after the towering, emergent "pines" are spot lumbered. After that the body of the forest is clear felled, burned, and planted to Araucaria cunninghamii ("Hoop Pine"). Klinki Pine so far has not been grown successfully in the forest nurseries at Bulolo. Unsuitable pH would appear to be the trouble, and it is not believed that conditions on the acid side are necessary. Small numbers of A. cunninghamii grow mixed with A. klinkii in this area, and go higher on the slopes. This is if anything a better timber tree than klinkii, and it has been used with almost spectacularly good results in the Bulolo plantings. The young plantings are given three annual weedings, then left to themselves. The oldest planting, now 7 years old, must be 25-30 feet high, and of very even, healthy growth. Planting interval is 8 or 9 feet. It is planned to put in a pulp mill to utilize the thinnings. I made notes in 1957 on the modern plywood mill which the Bulolo forests supply (it has a floor space of 3 acres). I think I also noted then that the average klinki pine cut was 230 feet high and something over 3 feet in diameter.

Hurried collections in the Bulolo forests included a Pasania which occured scattered through the forest. This is what I would call a mid-mountain forest tree. The forest in general is composed of rain forest elements. Have heard it said that klinki does not regenerate under ordinary forest conditions. But I saw today numerous young trees of various ages. The species probably regenerates in openings in the forest canopy made by the fall of old trees. The cataclysmic ides does not seem to be necessary to explain the present stands of klinki. Many of the trees said to be overage.

Returned to Lae after lunch at the Pine Lodge Hotel. A few miles (c. 5) on the road from Bulolo we called in to see an old friend of mine named T.W.Bayliss.

Bulolo-Lae

Tom has been in the goldfields area since 1926. He took up an extensive bit of auriferous ground early in the piece, and held on to it. He and his son Colin are now profiting from gold sluicing. Tom presented to me a fine example of prehistoric stone "mortar", larger than most I have seen, which was unearthed last year, 40 feet below the surface, in his sluicing operations. The mortar was in use as a bird bath at the foot of Tom's front steps. It will go to the Museum.

Tom was always a teller of tales. Finding an eager listener in Van, he held forth about the old gold prospecting days. Being shot at with Kukuku arrows, etc. Also, his boys have told him, there is some mammal in the forests of their native mountains in the direction of Mt. Missim - a fairly large mammal - which etas their garden crops, and seems unknown to white men (and perhaps even the natives). Tom will talk for a specimen to be brought in. He has seen very large bones which were unearthed in the Bulòlo area, but no small bones. Bulolo is in an area in which Tertiary marsupials have been found.

In the lower valley of the Bulolo we ran into heavy rain which continued over the Markham fall. At Gurakor we called in at the road camp to gain local information and were treated to a beer by Jim Sullivan, an Irishman 30 years in the country, and stationed on the Gurakor road section for several years. A very attractive view from here over a section of the Markham Valley to the Finisterre Mountains, some 40 miles distant.

Monday, April 6. My day spent first in splitting with John Womersley the botanical material collected during the weekend, then preparing my share for drying at the Forest Herbarium. Prepared 28 numbers of flowering plants and ferns and still have some to go.

John and Van scouring the town for camp gear, and having difficulty in finding what we want. Some items, such as enamel plates, unprocurable. Lae is no longer a frontier town. Its business is done largely with coffee planters and service industry personnel living locally. The Department of Forests is again coming to our rescue, and providing a number of items which we can not buy locally or could buy only at high cost for temporary use pending the arrival of our cargo on the 16th. We hope to get out of the town and establish our first bush camp within the next two or three days.

About 5:30 in the afternoon I drove out to the Budebum Creek area where, earlier in the day, Van and John had found what was described as a very promising area of tall primary forest 6-7 miles out of town. The forest much broken by grass on ground formerly cultivated by a rather numerous native population. Much tall old second growth rain forest of lowland type, and primary forest which has been heavily logged. A nice small area of apparently almost undisturbed tall forest seen on the banks of the creek. All this area, John Womersley says, was a vast ordnance depot during the war. Dumps were dispersed all through the forest. Apparently no one has been blown up so far by planted land mines and such relics, but it is not a place to wander about in too freely. Van has 36 traps set in the area tonight. He shot a small Pipistrellus in the broad bed of the creek at our terminal point.

In town today Van and John met the Rev. George Horrolt, German born Lutheran missionary at Gurakor, on the Bulolo Road. Horrolt very cordially invited us to use the Mission as a base, and use a spare house there. This would be the best possible site for a camp at about the 2000 foot level in this general area.

Bulolo-Lae

Tuesday, April 7. Finished preparation of the week-end collection. Have from it 42 numbers including bryophytes. Tidied away sundry insect collections which have been given to us. Prepared plant collecting supplies for the bush.

Jacking last night in the Budebum area until about 11 o'clock, Van (accompanied by John) shot a Pteropus neohibernicus, largest of the fruitbats, and one of only two seen. Nothing in traps except a couple of largish brown skinks, common in this area but not previously collected by us. A bandicoot seen.

Van and John up the Bulolo road today as far as Mumeng, fifty-seven miles, to see Mark Schultz, owner of the house on the best site for a collecting camp in the Oomsis area on the lowlands. I did not know on Sunday, when we travelled that road, that Schultz lived at Mumeng. He is reputed to be a hard and shifty man to deal with. Was warned against him by John Womersley. Schultz and the Forests Department are at daggers drawn over a fight about timber rights. Schultz, according to John Womersley, took up a block of land some years ago as a speculation, thinking that the timber went with the lease. The Department of Forests claimed the timber, and in a battle which went as far as Canberra, established its right and duly cut the logs of marke value.

Today, Schultz and his wife were found most cordial. I was prepared to go to £5 a week rent for the house, but Schultz accepted our starting price of £3. They want to clean the place out before we move in (for a period up to 4 weeks), so we can not take possession until Friday.

On the outward journey Van and John called in at the Bends forest camp, 5 miles the other side of Schultz', and confirmed my impression that this would not be a good place for a collecting base (no activity there for a couple of years; much disturbance; logging roads grown over). At Gurakor they called in on the Horrolts and were fed to their none too small limits with all kinds of foods with afternoon tea. Mrs. Horrolt most hospitable in the gold old German style. She has had some training in botany. They also spent some time at Zenag, the property of Mick Leahy (now in the U.S.), where 17-year old Richard, in charge of the place, had a Petaurus (living) and several pickled Miniopterus brought in on call by local natives. The Petaurus is small and may be P. tafa. The bats are of another species from a single large one (M. schreibersi magnator ?) which Van shot at the Bulolo hotel on Saturday night (not mentioned before in journal).

A very successful trip by Van and John.

There is no end to special requests when one goes out on a trip like this. Today I have one from Dr. Hj. Eichler, State Herbarium of South Australia, asking for a special set of the Ranunculaceae to be put aside and sent to him. He realizes that his herbarium can not share in the general distribution of the plant collection, and he is a recognized specialist in the buttercup family. He is asking more than I can offer to do. I will recommend that he ask the National Herbarium to send him the Ranunculaceae for study. It is usual for the specialist working on a collection to be given a set.

Wednesday, April 8. Morning spent on the preparation of collecting supplies for the proposed Oomsis Camp, and odd items of business in town. In the afternoon I started reading galley proof of my 1956 report (Results 79 of the Archbold Expeditions).

Lae - Oomsis

To dinner in the evening with John and Eshbel Gunn, Harry S. Trinder, only dentist in private practice in town, and a good story teller in a broad Sydney accent, also a guest.

After dinner Van, John, Gunn, Trinder and Bill Smythe betook themselves to the Lutheran Mission across Budibum Creek to jacklight mammals. They returned, late, with 2 Petaurus and and Echymipera, the latter having been run down in long grass by John and Joe Collins. Forgot to mention that Joe, John's oldest brother, arrived in town this A.M. from Port Moresby, en route to Goroka after some business in this area on a timber lease on the Chimbu Divide. After long negotiations he has secured a lease of 1000 acres at c. 7000-8000 ft. carrying much Podocarpus and other good timber. Another block will be available when this one is cut out. Believed to be about 50 years of cutting in the general area.

A partial eclipse of the sun this A.M. accompanied by a distinct drop in temperature.

Thursday, April 9. Dull, sultry day followed by steady rain in the evening and extending well into the night (now 10 PM.).

Most of my day spent on the galley proof. Have finished 30 of the 51 pages.

John laying in supplies for the Oomsis Camp and having the dealer's 1000-mile (actually 800-odd) check made on the Land Rover.

A red letter day for Van. In 3 nets set in the Botanic Garden he found this morning 3 of the previously collected small Nyctimene sp., 2 Syconycteris, and 1 Macroglossus. And this afternoon a long-expected Zaglossus from Telefomin near the Dutch border arrived by air for the Botanic Garden cages and was found dead this morning. We have the body. A mature specimen in perfect condition, now safe in a plastic bag in our household icebox.

Friday, April 10. Our start for the bush today was too characteristic of New Guinea. Got away between 8 and 9 AM. our two Finschhafen boys on a Forestry truck which also took a great herbarium (spare from the Forest Herbarium) drier which I will use with 2 Tilley lamps as a source of heat. Van had another netted Syconycteris to work on, and a snake or two, but this did not delay us. We waited until 11:45 for Mark Schultz to arrive with the key to the house we were to occupy. When we had got through talking with him, and Lionel Baker, who drove him into town (Mark's Land Rover had broken down), it was time to eat. Then we had to wait until the opening of the shops at 1:30 to take delivery of fresh meat (our house has a kerosene-burning refrigerator). Various other delays kept us in town until 2:50. We arrived what we will call Oomsis Camp 40 minutes after that - it is 22 road miles from Lae. The house, c. 30 x 20 ft., is on high stumps and well built, also secured against insects. It has now windows. A thick coat of dust from the nearby road lay over everything and mopping it clean took time. A most comfortable camp.

Saturday, April. 11. We found today that Oomsis, about 400 feet above sea level, may be even hotter than coastal Lae. Had difficulty in sticking towork on my galley proof.

Van last night shot a pale brown small Melomys in the smallhouse. Twenty traps out produced a bandicoot (Echymipera), a Rattus ruber, and a Rattus exulans.

Oomsis

A Syconycteris in one of the 3 bat nets. An old, distinguished looking local (Gabensis) native named Zenag, brought along by Lionel Baker before breakfast, and given 3 #4 cartridges by Van, brought in, late in the day a good Phalanger - maculatus of very pale color, shot with one cartridge.

Our camp icebox is not functioning very well. When Van took out the Telefomin Zaglossus for skinning this morning, it stank. Fortunately, the specimen was well wrapped while in with our fresh meat and butter.

John and I collected 27 butterflies, and sundry other insects during the day. Geckoes on the screens quickly snap up anything that comes to the light.

Had tracks into the forest opened up.

Sunday, April 12. Steady, light rain fell through most of the night after about 10 PM. Today overcast; very little sun; an occasional light shower. It threatens to rain again tonight.

Was surprised when, soon after our 7 o'clock breakfast, Lionel Baker, manager and part owner of Gabensis Plantation, 2 miles down the road, walked in, spick and span in the shorts that most men wear here, on what he described as a regular Sunday morning stroll. We got to talking about this locality. His place is close to Oomsis village and also on Oomsis Creek, but for the psychological reason that Oomsis Prison Camp is nerby, he called the plantation Gabensis, though the village and creek of that name are two miles up the road from us. Lionel estimates our altitude at not much more than 250 ft. The present weather, says Lionel, is unseasonal. We are just within the reversed season area of the head of the Huon Gulf, of which Lae is about the center. The wettest season in this area is in the SE season, c. June through September, and during this season practically all rain falls during the day and nights are clear. The reverse applies to the NW season, when nearly all rain is during the night (Nov.-Dec. through March or into April). Our present rain is from up valley, or NW. Lionel spoke of two wet seasons (as in parts of Africa). This is a matter for inquiry.

Finished today the correction of my galley proof. Took out of the driers my collection of last weekend, about 4/5 dry after 3 days in John Womersley's hot box.

Only one small Rattus exulans in traps this AM. Rain this evening prevented bat shooting, also jacking.

Gabensis natives, from up the road, appeared this morning with a Phalanger maculatus ♂ skin, minus felt, tail and head and stuffed as a pillow, for which they asked £2. As night fell another Gabensis man came through the rain with some sort of Python, perhaps 6-8 ft. long, for which he asked £5. No business.

This morning our #2 cook, Sila of Fife Bay in Papua, came to me with a story that he has a store job to go to in Goroka and wants to finish with us. Obviously lying, for there had been no way for him to get a letter since we moved out of Lae. Kim, #1 cook, says the other boy does not like the bush. So here goes the second #2 cook in about a week.

Oomsis

Monday, April 13. A month ago tonight we drove out to Idlewild to fly to Australia and New Guinea. We have been on the ground in New Guinea 19 days, and this has been my first real day in the field. Four full days went into the correction of galley of my 1956 report. It has been a slow start, and we will lose more time in unpacking and sorting cargo, when it arrives.

With one boy (the crippled Naton), I worked over to Oomsis Creek, 220 yards from camp, up the stream a bit, and back to camp by a small track through the forest. Some good tall rain forest survives quite close to the camp. Sixteen collection numbers (94 sheets) included some good things, e.g. a big tree Cassia of the brewsteri group, 2 Graptophyllum spp., a small tree Couthovia previously collected in the Busu forests; a small tree Ceodes, and another undergrowth tree of a genus I can't name unless it is Rinorea.

The rain prevented jacking last night. Only one Rattus exulans in traps. A good ♂ of the small Echymipera of this area brought in by Schultz's caretaker boy, who trapped it in a deadfall.

In my morning in the field I came across 2 deadfalls set for bandicoot. And around a fruiting, cauliflorous Ficus (29173), a native had made a fence of rusty galvanized iron, and in gaps had set two spring snares. According to Naton, the snares were for bandicoots, which came to feed on the fallen fruits.

Being reduced to four boys this morning for all duties (we need a minimum of six), I sent John up the road in the Land Rover to try to recruit 2 boys at Gurakor, 22 miles up the Bulolo Road, where the natives have a good reputation as labor. Before reaching Gurakor John met Schultz, who told him about a couple of good boys he could recommend at a locality called Pericles Creek (Perakles Village). These boys we have.

Mark Schultz said when we moved into his house on Friday that he would be down about the middle of the week to remove very numerous wine glasses of all types which came from a roadside hotel he once owned at Mumeng - in the days when the drive from Lae to Bulolo took 2 days instead of the present 3 hours for cars - and other items of movable property including a 38 service revolver, a parachutists' carbine, and two other military rifles. Mark has seemd uneasy about these things, although assured that we had no interest in them and that they were not occupying room we needed.

Much excitement this morning over a bat new to the collection. A free-tail with c. 18 inch spread of its narrow wings, and two bent falanges. Might be a Taphozous, thinks Van. Another was shot and fell into long grass. All hands out with all sources of light available, but failed to find it.

Very heavy rain, from inland, during much of afternoon. Some stars showing tonight.

On his drive this morning, John called in at Mick Leahy's Zenag farm and returned with cabbage, pumpkins, shallots, lettuce, celery, parsley, string beans, carrots and pineapples in abundance.

Oomsis

Tuesday, April 14. Only slight showers last night. Some cloudiness today, but no rain. A good day for field work.

My morning spent in an area in the foothills about 1 mile SW of camp and at an elevation of 650 ft. according to the Forest Department map of this area. (This same map makes the elevation of our camp 350 ft.) At the log camp at the end of the road I met Bill Jenkins, a Sydney native in charge of logging operations and 10 years in this country. In an area of not more than 2 acres, 100 - 200 ft. on the slopes, 17 trees were cut yesterday. I went there to work over the felled area. It was not a profitable as I expected. Most of the timber trees were fine, tall, straight dipterocarps (Anisoptera), associated with which were an Intsia (local name Kwila), a Celtis, a ? Cinnamomum, and a verbenaceous tree the generic name of which will not come out from the back of my mind. The density of the newly felled area was such that it was hard to scramble over it, especially for me, in a rubber-soled sort of gym shoe. All the big trees were clean boles and, though differing in bark characters, none was favorable for epiphytes. Common high on the trees were a Lecanopteris and a Dischidia (aff. Nummularia); a staghorn fern (Platycerium) was too damaged to collect; several small orchids were sterile; I collected one extraordinary smaller mass (#29194) from high on an Anisoptera. A Pothos, characteristic as a root climber was in flower. A fan palm (Plicuala), plentiful on the slopes, was just as common in creek-flat forest in camp. A slender, very smooth Cyrtostachys occuredwith the fan palm in young flower bud only. Another slender arecoid palm, also sterile, was noted, and a robust,climbing Korthalsia. The forest had no definite subcanopy layer. A plentiful substage layer of slender trees had nothing fertile and collectable.

My boys picked from the boles of the newly felled Anisoptera trees two very big longicorn beetles which Jenkins recognized as the adult of a "Witchety" grub damaging to dipterocarp logs. According to Jenkins, the beetle attacks only damaged bark surfaces of standing trees. But a day or two after the trees are cut down the females come along and lay their eggs in the numerous bruised parts of the bark. The eggs hatch rapidly. The larvae seriously damage the logs with their borings. Barking of the logs will prevent damage. Jenkins can get no identification of the beetles from the Lae entomologist.

Clearance of logs from the ramp area has been held up by the recent weather. Saw there one Anisoptera log, nearly 3 ft. in diameter at the big end, which had been cut onto 3x40 ft. lengths, and on end bit of about 10 feet. A Kwila log was nearly five feet through !

Being short on plants, I stopped on the way back to camp to collect dragonflies, and got, I think 9 species, including a blue damselfly like thing entirely new to me, and a couple of big ? Tramia spp. An ? Anax hawked over one pool just out of reach. The pools were formed in gullies on the upper side of the logging access road.

Van and John, jacking last night, shot a ♀ Phalanger orientalis with a very big young one in her pouch. Two good Melomys in traps set in the logging area described above. Two Pipistrellus papuanus shot at dusk this evening. Van (with John's assistance in shooting, and driving the Land Rover to good spots) is doing well.

A blowfly pest outside, makes advisable the skinning of all mammals in the screened porch-living room of the house, even smelly cuscus. Today I rigged

Oomsis

John Womersley's big plant-drying box, heated by 2 Tilley lamps. Added to the not always sweet odors of drying plants is the smell of ripe skulls and the effluvium of Van's Zaglossus of days ago. Tonight it's not too bad.

Wednesday, April 15. Definite SE weather today. But in this rather narrow valley, facing N and the big Markham Valley, the wind came up valley from the North. No rain, but rainy looking clouds in the Markham Valley, miles distant.

Walked up the Bulolo Road ½ mile or so and struck in - E from there to the primary forest on the first left of the foothills of the Herzog Mts., c. ¼ mile from the road. A work gang was felling Anisoptera trees and the verbenaceous tree today, so I could safely work only the fringe of the rising ground. Pometia pinnata (Taun) was the only tree collected. Nothing striking otherwise in 17 numbers. I am running short of borrowed botanical driers and corrugates (my old stock of 1956, given to John Womersley after that expedition), and am therefore obliged to cut series from 8 to 6. The Tilley-heated drying box works slowly. And today there was trouble with it. A 5-gallon drum of gasoline was stored under the house with the 3 drums of kerosene, and the inevitable happened when the boys filled the lamps this morning.

Caught today my first damselflies for the trip (2 spp.), also what I think is the 12th sp. of dragonfly for this camp. Bee-eaters hawking in the Schultz clearing late in the afternoon.

The native driver of a govt. Land Rover, bound for Mumeng, delivered a batch of mail from Lae. Nine letters and 2 radiograms for me. Good Alan Willis, in a radio message from Port Moresby says our New York and Singapore cargo is on the Shansi. An international telegram signed, cryptically to me, "Rus Fifmac Sydney" asks if help can be given on "certain Archbold gear being held in Sydney." I expect from Russ Peterson, in Phil Spalding's business-like wording..It gives one a nice feeling to have friends rally around when they hear one is in a bit of trouble.

A very nice letter from Cogswell & Harrison, the London suppliers of our .410 ammunition, informs us that the person whose high-power rifle ammo we got is "a gentleman in British Somaliland." Our proper shells would be shipped on the first boat to Hong Kong.

As the day closed, and Van and John were going out bat shooting, they met old Zenag with a big ♂ Phalanger maculatus and a bigger female. Paid him 6 sticks tobacco, 2 tins meat, and 10/- in "marks". He had used only 2 of the 4 #4 shells Van gave him a couple of days ago.

Shot tonight were a Pipistrellus, and a Hipposideros new to the collection. Both well infested with ectoparasites. Several pips flew in front of the house, low after mosquitoes. Tried to knock them with a stick. My one butterfly net was away in the Land Rover.

Thursday, April 16. Fine, hot day; good breeze up valley - 2-5 PM.

Botanized up the W slopes of the valley, in Schultz' area, to 300-400 feet above camp. Good primary forest, not much disturbed by logging, on the creek and basal slopes. In the dipterocarp zone, beginning c. 200 ft. above the valley bottom, cutting has been very heavy. The forest was wrecked 3-4 years ago by the Forest Dept. in taking out 2½ million feet of timber from 400 acres all told.

Oomsis

Now second growths (Macaranys) and young trees of the primary forest. Best plants probably Syzygium sp. with white flowers and a big-leaved Litsea.

Had another let down today. The Shansi, with our long delayed cargo, due in Lae today, will not be there until Saturday at the earliest. There is no explanation for the delay. John Womersley sent a message with a Forest Department timber hauler, and drove out in late afternoon, with Mary and the girls, and two lady passengers from a visiting ship (Sinkiang, from Honara), to tell us what he knew.

For two days now I have been husbanding botanical driers. Thought this would be my last day of handicapped collecting. Now we can not expect our cargo until Monday 20th.

In traps set last night, in the western forest, Van had a young Echymipera and a Melomys. Schultz' caretaker brought in an adult of the bandicoot, for a reward of 4/-. A giant Pteropus neohibernicus was shot in a big sapotaceous tree, where several were feeding on fruits, but could not be recovered. Three pips and two of last nights Hipposideros shot this morning. Later: Two of the "pips" turned out to be Emballonura, new for the collection.

Friday, April 17. Overcast day; no sun; heavy shower for ½ hour after 9:45 AM.

Yesterday I had from Buntings a note which Dusty Miller of Samarai had sent with my 1956 #1 botany boy Edewawa. Characteristically, Buntings sent the letter but not the boy, who could well have arrived at the same time. He came on the Chinampa from Samarai, getting to Lae last Saturday ! Edewawa is as lean as a hunted devil, and possessed only of what a little wooden "suit case" will hold. Gone are the 3 blankets, canvas, etc. he had from me on the last trip.

Got ahead of myself in not recording, first, that I sent John to town today to pick up Edewawa, and some further botanical supplies from John Womersley. I also sent three made up bundles of yesterday's plants to go into John's herbarium drier.

Fiddling about with numerous bundles of partly dried plants made me late in getting into the field. Then I sheltered from the rain under a banana leaf for ½ hour. Numbers collected were only 12, but most of them good subcanopy trees of the primary forest of the beginning of the slopes up main Oomsis Creek on the main branch of the logging road. Something in a stinging Laportea, ? Endiandra, Meliaceae with pendent recesses of white flowers. And from the Creek flat forests: a common big-leaved Pisonia, thorny Capparis 29232 and horizontally branched Amaracarpus from the undergrowth.

The Gunns and Bill Smythe came out to visit us late in the afternoon, went bat-shooting with Van in early evening, and now are out with Van jacking west of the road (8:45 PM.). Another small Hipposideros shot (2 spp. for the camp now recognized). Last night a ♂ and a ♀ Pteropus neohibernicus and a Dobsonia were shot in the big sapotaceous tree.

Saturday, April 18. Dull, threatening AM., PM. fairly clear. SE cloud movement overhead, and a good breeze up valley in afternoon.

Oomsis

Followed the main Oomsis Valley logging road to about a mile from camp. Visibility very poor for spotting flowers and fruits in the trees, so I struck in to the creak and followed it down c. ½ mile. Banks low, gravelly, subject to flooding and unstable. Many big trees, undermined and fallen over the creek made travel difficult. On the one short stretch of high bank, where the hills come into the stream, I collected my first tree-fern (Cyathea) for the trip.

Having a spare boy (Kili) for the time being, I sent him out insect collecting in the morning, with instructions to let the butterflies alone and concentrate on dragonflies for the killing bottle, and spiders to put in an alcohol jar. Result, a number of common butterflies in the bottle, and a mess of dragonflies mixed with a huge beetle in the alcohol. After lunch I had John give further instructions in his fluent pidgin, but got no more than 6 dragonflies for the sunny afternoon. Kili will not be with us long. I don't expect any Einstein's. But this fellow is too dumb.

Close examination of the several Melomys trapped here show 2 spp., one with white under pelage, the other with gray. We now have 16 mammal spp. from this camp. A blank in traps this morning; they have been moved to the creek in an effort to get Hydromys. A pip and a small Emballonura shot this evening. Schultz' caretaker boy contributed a big white cuscus, shot somewhere in the hills. Our information is that this animal is only on the hills in this area.

Van and John, jacking to 11:30 on the ridge about the nearest logging paddock, shot only a green tree boa. It developed into a herpetology night. Frogs became active after the onset of rain c. 10:30 and five or six species, including a curious, flattened, yellow one from the thin layer of leaf litter on the forest floor, were collected. In the morning I had collected a very small gray frog which hops on moist gravel bars in the creek.

Sunday, April 19. Rainless but largely overcast day with strong breeze up valley PM.

My day spent on collections, which are drying very slowly with the Tilley lamps, and on accounts and letters.

An extraordinary day for Van. Seven Syconycteris in nets set around a fruiting ficus aff. ribes tree. A Hydromys in traps set in the main creek. A Uromys ?caudimaculatus but from a tree and brought in by Schultz' boy. In all, there were 14 mammals on the table this morning. Van now has 18 spp. for the camp. Very good for 9 days in the field.

The Womersleys drove out late in the day with the latest news on the laggard Shansi. Now she is not expected in Lae until tomorrow morning. There is over a radio report that the ship will call at Madang before. We are preparing to go into Lae in the morning. Traps are in and bat nets down.

Some very heavy rain during the night (19th).

Monday, April 20. We are in Lae and the Shansi is here. Expecting a message from the ship by a Forest Department timber truck, which did not arrive. We left Oomsis about 10:30 and, driving all the way in rain, drove in to Lae in the expectation that the Shansi would have arrived. She tied up around 6 AM. but the rain delayed cargo handling until about 4 PM. We drove straight from the Bush to the wharf 1-2 miles S. of town. John recognized the

black funnel of the China Navigation Co., Ltd., but I was not satisfied it was our ship until I read the name on her bows.

We are again in Bob Buntings comfortable house in Lae. John Womersley, working on the inside, had Customs clearance on our cargo before the ship began to unload. I worked through the afternoon on collections I am trying to dry. I have been so far ahead of drying capacity in my field work that mold is beginning to show in some specimens. It will be a blessing to have my own equipment.

Tuesday, April 21. We have our cargo. Most of the boxes have been unloaded. So far the only breakage has been one small killing bottle. The Museum shipping room did an excellent job of crating. The guns are in order, the radio works. So does my typewriter, delicate thing that it is. Our packages stood out in the bulk shed by the quality of the crates and boxes. But even so we had trouble in finding one package -- #1 containing the ammunition. The Shansi's Chinese tally clerks checked the number of items taken out of the holds. There was no checking onto the wharf or into the storage shed. That shed was a shambles. Consignments were mixed and there was no organized stacking. We were there bright and early in the morning with a Forests Dept. truck and a Ferguson tractor and trailer. Found 14 packages, but #1 was missing. I naturally thought that as it contained ammunition it would be special cargo and in charge of the first mate, under lock and key. Nothing was known about it on the ship. John made another search of the shed and kept watch on the ship's unloading in the afternoon. He reported back at 4:30 that the box had not turned up and that the ship was trying to squirm out of responsibility on the grounds that they had no box of ammo on their manifest and knew nothing about. I hastened down to the wharf, and got the same attitude from first the ship's "writer" then the 1st officer. When told that it was no business of theirs what #1 contained, it was merely one of 15 packages of ours on their manifest and it was missing, the mate became reasonable. The ship was already past her sailing hour, but was waiting for a passenger lost ashore. It seemed that our box might turn up as unloading proceeded at some other New Guinea port. We had a final look through the storage shed. Then the Colyer Watson clerk of the wharf had a brain wave. The missing box could be in a small open shed where deck cargo was stored. And there it was. It had simply disappeared in the hands of the natives who were handling the cargo.

Also on the Shansi were two crates of live traps sent from Singapore by Bob Traub. Van had asked him to send half a dozen traps. He sent 80, packed in two flimsy crates which must have been put together by some bush Malay. One crate was barely holding together, the other was in pieces and traps of various sizes, makes, and antiquity lay mixed in the store shed with cans of meat and packets of tea from other broken cargo.

To dinner with the Womersleys in the evening. From them we learned that Margaret Gilliard was expected in Lae about the first of May, Tom about two weeks later.

Wednesday, April 22. Had to spend the whole morning on my plant collection. Some of the plants have not dried at all in the equipment I have been obliged to use. A few specimens have molded badly and have had to be thrown out. Have one of my own drying units in action now.

In the afternoon I had my boys begin the slow job of putting protecting brass screws (instead of steel nails) into the soles and heels of my boots, while I started to organize supplies for the mountains. Van also working on supplies. The stuff we want for a planned 2 months of work on Mt. Wilhelm will be flown in to Goroka during the next month on government charter flights.

Late in the day, Van and John investigated a report of bat infestation in the roof of one of the Qantas staff houses. They found about a dozen small Pipistrellus, all but one of which escaped.

In the evening John Gunn and Bill Smythe dropped in with a great funnel-web spider they had collected at Eric Duncan's farm, about three miles west of Lae. Smythe says he has seen this spider only in the Lae area. It does not dig the holes in the ground which it occupies. It uses cicada holes, holes left by roots which have rotted out, etc. These holes may be anything from about 6 inches to 3 feet in length. Today's collection came from the steep bank of a small stream in rain forest.

Thursday, April 23. Day spent on the organization of supplies and looking after collections. Wind now from the SE (at least temporarily) and in consequence the bulk store is noticeably cooler than before.

A very heavy squall during the early evening. The town power went out and we had to eat our dinner by flashlamps. Also, had to go to bed instead of doing paper work which must be done.

Mick Leahy and his wife returned from the U.S. and Hawaii and we met them at the airport early in the morning. On the drive home to Zenag, in the mountains towards Bulolo, their car broke down. Someone brought them in to town. I sent John in the Land Rover to get their car going. Failing to do this, he drove them on to Zenag. This lost us the use of our vehicle in the afternoon and numerous errands have had to be put off until tomorrow. Lae is so spread out that one is helpless without a vehicle. There is a native-driven taxi service, but costs are high and one may wait up to ¼ hour for a taxi to arrive.

Late in the day we were driven down to the Dick Tebb house on the water-front to see a consignment of live animals which will be shipped to Sydney tomorrow on the Bulolo in cargo of Dave Bush, head keeper of Taronga Park Zoo. About a dozen tree climbing kangaroos of two ssp. (matschei and a grizzled dark brown one which might be goodfellowi), a Satanellus, and 20 salvadorini ducks. I understand that the ducks are to be sent on to England: 4 for Regents Park, 16 for the wildlife establishment of Peter Scott in Cumberland.

Visited the Bulolo at the wharf after dinner to meet Mr. and Mrs. Jock McLean, parents of Ishbel Gunn. Jock and planter of the Bainings, New Britain. A very intelligent old Scott who has been in the country since 1912 and after World War 1 acquired an expropriated German property (coconuts and cocoa).

Friday, April 24. Back at the Oomsis Camp tonight, and glad to be here. It has been impossible to avoid social doings in Lae, and pleasant though this may be, it interferes with letter writing and so on which one hopes to accomplish in the evenings.

Paid off this morning the Finschhafen boy Naton who has been working for me on plants. He was a good, energetic, intelligent boy with a rather unusual

amount of initiative, but he has a chronic bad leg and would be a liability in rough bush work. Asked Naton yesterday, when I gave him notice, if he had any "one talks" who would like to work for us. At noon today he brought along four from somewhere in the Finschhafen bush. Took on the two most likely looking, and they do appear good prospects. The two dopes recruited from the Pericles area a couple of weeks ago will be let go as soon as it is convenient to return them to their home locality. That will leave us, after some winnowing, with six boys. This will be our crew until after the Mt. Wilhelm phase of the trip. Will probably take on a bug boy and a herps boy after that. It would not be worth taking "specialists" of this kind to the higher altitudes, and only five or six weeks remain before we will be taking off for the high mountains.

The load on Land Rover and trailer out of Lae this afternoon approximated 2500 lbs. It included a 50 gal. drum of kerosene, about half to 2/3rds of which we will expect to use before the end of May, but at this it will come cheaper than 5 gal. drums at the local rate of 2 pounds per drum. We have food for only 10 days. Still, the outfit could have carried more weight, and Van has at least 100 lbs of collecting supplies which he will not be able to use. I estimate, that by due attention to weight, and the elimination of everything not essential, we could move our party of 3 whites and 6 natives, with supplies for about a month in one load. This is better than I anticipated.

Van has traps out tonight. He and John went down the road 2 miles to Lionel Baker's Gabensis Plantation, but rain spoiled their shooting of bats. They saw a big insectivorous species which is not yet in the collection.

Saturday, April 25. Anzac Day and a holiday, with special doings by returned soldiers, in Lae and all the other centers of white population in Australian territory, but a busy work day for us. At last we are functioning with all the equipment and supplies we consider necessary for our work.

Light to medium rain through most of last night. A threatening morning, which made visibility bad for botanizing until near noon. Light rain began about 6:30 pm., soon after I had set up a light trap for insects for the first time on the trip.

With the bush Finschhafen boy SONI (pronounced Sawni) and old-hand EDEWAWA as what I hope will be my final botany crew, I collected on the point of low mountains which comes very close to the Bulolo Road about ½ mile or so above camp. Followed first a new logging road (put in this week) up into the dipterocarp zone at about 200 feet above the main road, where this tractor road -- very steep and clayey -- ended. Carried on up the slopes from there in undisturbed primary forest in which a scattering of Anisoptera of commercial size occurs. Went to perhaps 700 feet. A little below my top level was a giant Anisoptera at least 5 ft. through above its short, thick buttresses and sprawling, massive surface roots. Got a good bag of subcanopy and substage trees, two or three ferns including Ophioglossum pendulum, the remarkable Dipodium in climbing orchids, my first Pandanus for the trip (small P. kivi aff.). A rather remarkable feature of this forest of the lower slopes was the abundance as a substage tree of Gnetum sp., the young leaves of which my boys collected as "cabbage". Palms of several species were a conspicuous feature, too, but I saw none in collectable condition.

Only a small lizard in traps this morning. However, during our absence in Lae the lumbering boys brought in, alive, a Phalanger orientalis, 2 Petaurus, a Melomys (white bellied), and a Nyctimene. Schultz's caretaker brought in three Echymipera from his snares. So it was a busy day in the mammal department.

Oomsis

Sunday, April 26. Rain again through a good part of the night. Fine day, turning a little showery late in the afternoon. Heavy rain early in the evening. The Markham River is up and this afternoon is running a couple of inches deep over the road in one place. Lionel Baker says this was the second Anzac Day in 9 years on which it was possible to drive a car into Lae. The Markham always over the road at other times.

Having much paper work to do, including organization of the Mt. Wilhelm flights, stayed in camp this morning and sent the boys out. They brought in six spp. new to the collection. Mostly regrowth elements.

When it came to the point of my needing preliminary figuring on Mt. Wilhelm which I did in the U.S., I could not find the sheets. They are missing with a cost analysis of the expedition, a personal check book, and perhaps other papers. After preparing today's plants, John and I drove into town and I searched every likely place there without success.

Was settling down to work after dinner when the Gunns drove up from Lae, with an air hostess (Jan Sargeant) with them. Was fussing around with them when the evening rain started with a sharp downpour which poured into my light trap, hanging under an African Tulip tree, before I could rescue it. An unprofitable 24 hours for me.

Van had all the luck. Nothing traps, but two bats were caught in the nets at my fig tree, one of them the extremely rare Paranyctimene raptor, of which this is the sixth known specimen (3 including the type in Archbold Collection, 2 in the B.M. collected by Shaw Mayer. In the evening a Miniopterus new for this camp, if not the collection, was shot. This makes 21 spp. for Oomsis to date.

Monday, April 27. Light rain through much of the night to about 4:30. Dull morning; ditto most of afternoon. Only a light shower or two before dark.

Had John drive me down the road about 1½ miles to where a rather recently used logging road follows up a creek (tributary of the Oomsis) into what must have been very good Anisoptera forest on the lower slopes. Main logging road follows the creek bed for c. 1/3 mile to an old log paddock and loading ramp. Numerous short side roads up the slopes 100-200 ft. A good bit of remaining (unmarketable) Pometia and Intsia in the dipterocarp forest. Got a good lot of plants; 18 numbers - best day so far for this camp; 112 sheets ready for the dryers tonight. Especially interesting were a big-leaved Sloanea ? and a pubescent Ceratopetalum? of the substage layer, and what seems to be an Anonaceous small tree of the undergrowth with curious small purple flowers hidden under the rugose leaves of pendent branchlets, also a tall shrub or little tree of the undergrowth which has some of the characters of Mabaceae. A fine-cut Selaginella forms a thick ground cover in the forest on the little flats edging the creek.

Traps yielded nothing last night; three Syconycteris in the nets. A bandicoot from somewhere. Another new Miniopterus for the collection was shot tonight; two other bats were brought down but could not be found.in long grass and brush.

Tuesday, April 28. The usual dull morning, making botanical spotting difficult in the forests. Mostly clear in afternoon, and strong SE wind from early afternoon to after five. No rain. Black clouds over the mountains up valley; a normal evening occurrence.

Oomsis

Edewawa down with fever today. With one boy, visited the same general area as yesterday, mainly to see a stand of Hopea trees which were left for telephone poles, flagstaffs, and similar uses when the other hardwood timbers (mainly Anisoptera) were cut. The Hopea, sterile now and leaves muchneaten by insects, grows into beautiful straight sticks, the largest I saw not more than 18 inches diameter. Tree cutting was necessarily slow ith only one axe at work. Collected only 10 spp., among them two Lauraceae, a Rhodamnia, ?Prainea, and purple Dendrobium cf. veratrifolium the most interesting. This area is very rich indeed in its abundance of dipterocarp trees (principally Anisoptera; Hopea locally). The commercial stand is so thick in places that after logging the forest is almost completely wrecked. There are no plans for reforestation. However, the trees that are left seem stimulated to flower, or at least are more easily visible than in the undisturbed forest, and the disturbed areas offer good botanizing.

I am getting fair catches of insects in the light trap. With the turnover in native personnel, and the necessity to pay first attention to training the new boys as botanical helpers, diurnal insects have not had much attention lately. I catch a few every day when waiting for my boys to cut down trees. My hopes that John would develop an interest in using a net on dragonflies and butterflies have not yet materialized.

Last night's trapping, with three Melomys and two Rattus ruber, was Van's best so far on the trip. Also in traps 2 R. exulans, and a small bandicoot which got caught during the day and pretty eaten up by ants. Tonights dusk shooting produced a second specimen of the big Taphozous. A trial flower-flower boy who was paid off Saturday morning and has been bludging on Schultz's caretaker ever since, brought in a live specimen of the smallest Miniopterus, and was paid a stick of tobacco for it.

Wednesday, April 29. No rain in the 24 hours ending 6 pm except a sharp downpour for a few minutes after 11:45 last night which again flooded my light trap before I awakened sufficiently to dash downstairs. Fog low in the valley until after 8 am (same the last 2-3 mornings). Dull until after 11 o'clock, and no bright sun until late afternoon. No deflected SE wind up the valley today.

Yesterday two cadet foresters, Bob Wright and Alan White came out for a two-week stretch at the timber exploitation camp at the Big Bends (Garagos Creek) under the tutelage of Bill Jenkins (5 miles up the road). They spent this morning with me, had lunch with us, and John drove them home after they had watched me prepare some of my plants. We worked down the main road, on timber exploitation roads which went in and out of the forest and onto the kunai to an elevation of perhaps 400 feet. The exploited timber seemed to have been mostly Anisoptera. Good young stands of straight Anisoptera and Hopea from about 8 to 15 inches diameter were left (I regretted not having my camera), also some kwila (Intsia bijuga) which would have been marketable in countries less rich in hardwoods. Striking plants of the forest included a fine red-flowered Schuurmansia (forest edges), my first Hoya for the trip (photographed), more of the striking climbing orchid Dipodium(also photographed), and a big-fruited, excurrent substage tree which I think is in Mabaceae (Diospyros?, but no black in the wood). My brief look at the kunai yielded mostly the usual run of grasses and herbs of the secondary grasslands of low elevations (see field catalogue). There was also a big pubescent Euphorbia (Chamaesyce) entirely new to me. The dominant Themeda australis of the grasslands grew to over a meter high and seemed not have been burnt for a year or two. No trees grew on these man-induced grasslands.

Ooomsis

Van had 12 mammals on his table today, but nothing new to the collection. Last night's jacking after dinner yielded only a big, banded gecko and three species of frogs. Bats offered no shots before dinner. Nothing from late shooting. There is too much moon for jacking.

Have 24 numbers of today's plants catalogued. All my dryers are full and for the first time on the trip I have both drying units in action.

Thursday, April 30. Cool early morning (72 F) followed by a very hot, almost breezeless day (90 F). Scattered high clouds: no rain. We hear that the Markham still runs high.

Cadets Wright and White accompanying me, I collected up to 1200 feet on a minor eminence about a mile SW by S from camp which is given as 1350 feet on the Forest Dept. map of this timber area. Followed a clear flowing branch of Oomsis Creek a little way from the loading ramp in the forest, then came (from c. 400 to 900 feet) a steep climb through rather characterless primary forest. At about 900 ft. a big Casuarina appeared and I saw the first oak. Both continued at our top point, where a fairsized opening in the forest was tangled with Gleichenia and carried small second growth trees such as Macaranga, Alphitonia and Commersonia. A Eurya also grew there. Had my boys cut down an oak (flowers and acorns), and Soni climbed a tall Casuarina. This species has very fine twigs and appears different from any I have collected before (small cones). It is in the C. papuana group.

A reddish Emballonura, swatted last night by Lionel Baker's cook, is new to Van's collection. Total spp. for the camp now 24.

Dined with Bill Jenkins and Jack Lewine at the Forest Camp five miles up the road.

Friday, May 1. Today's weather as yesterday's.

Spent most of the morning on list of supplies for our proposed 2 months on Mt. Wilhelm. Had most of yesterday's collection left over for want of dryers to put them in. Sent the boys out to collect more and they brought in 6-8 numbers new to the collection. Some of these still have to be catalogued, for the Womersleys, bringing Lorry Edwards (Draughtsman of the Forest Dept. in Port Moresby who is in Lae to start botanical drawings for a memorial handbook on the timber trees for the late Director, J.B. McAdam), arrived soon after five and I had to quit work then.

Womersley brought out a Pseudocheirus which died on his hands in the zoo part of the Botanic Gardens, having been caught somewhere in the mountains above Mumeng. Also brought mail which must have been lying for days in the office of Buntings in Lae. Martin of Buntings is hopeless. For most of the remainder of the trip we will be dealing with Buntings of Goroka, which seems to be a wide awake concern. Have decided to ask all regular correspondents to address our mail C/O Department of Forests, Lae.

Sent John Collins to Lae to buy a month's supplies to carry us to the end of May.

Oomsis

Took an hour off in the morning to observe activities and make photos at the new Forest Dept. log paddock about 1/3 mile up the road from camp. Two D7 Caterpillar tractors hauling logs from the forest, one working in the paddock. Four trucks carry the logs to the govt. sawmill in Lae. Including the two cadets, who don't count for much in anyone's estimation, there were 6 white men involved: two driving the tractors hauling from the forest, one driving a truck, and Bill Jenkins in charge. All wore shorts, only 2 had shirts. Was impressed with the efficiency of the operations. No time lost anywhere (including depreciation allowance, the tractors cost 5 to 6 pounds an hour to run). The yard tractor was driven by a native who showed very good judgment and much experience in pushing logs around with the blade of his Caterpillar. This boy, with 10 years of experience in various aspects of lumbering, is paid only 5 pounds 4 shillings a month and keep. According to Jenkins, he has trained a succession of boys only to have them snapped up by private industry, which pays much higher wages. The logs are hauled in to the paddock in up to 80 ft. lengths, which are cut into logs 40 ft. in maximum length by boys with crosscut saws and wedges. Anisoptera, kwila (Afzelia), and Planchonia (a nice pink wood) were in the paddock. The biggest log I saw handled (by the native tractor driver) had a girth of about 15 feet and was estimated by Jenkins to contain 4300 superficial feet of timber. The biggest log they had brought in for a long time.

Another red letter day for Van. Having only one bat from shooting last night, and little in traps, he sent his two boys out this afternoon with axes to search for Pogonomys trees. They cut down two fair sized trees quite close to camp. One yielded 4-5 Pogonomys, the other a like number of the small bat Philetor ruhi. We now have 26 species of mammals from the camp. Our best post-war camp before this was Peria Ck. in 1953, where 24 spp. of mammals were collected. Breakdowns of the collections of pre-war camps are not available. (Many of the Philetor escaped the boys).

The Womersleys brought the news that Tom and Margaret Gilliard were flying home from Madang via Goroka and Port Moresby, and therefore would not be visiting Lae.

Saturday, May 2. Same weather pattern as the last couple of days or more, but with stronger wind up the valley in the afternoon.

Van and I, each with 2 boys, John Collins, the two cadets with a boy of theirs, spent the morning on Lake Wanum. We were guided by Lionel Baker, who had his young son Vernon with him. Drove down the road two miles to Baker's plantation, thence by a plantation road between one and two miles. Left the Land Rover in an area of young cocoa, and walked rather more than a mile to the lake. All of the route to quite near the lake was on the flats of Oomsis Creek, and most of the way between the cocoa and the lake it was through primary and old secondary rain forest. A two-way gutter of a little stream connects the creek with the lake. Today the water was flowing from the lake to the Oomsis. Lionel says that during last wet season the creek rose about 6 inches over its banks and into the lake. The lake shore in the vicinity of the two-way creek (c. E side) was low and marshy and fringed with reeds and, in deep water, great beds of the pink lotus, Nelumbium sp. The other shores which we saw, on distant views, were steep and rising into grassy hills in places capped by relic rain forest. Of irregular outline, the lake is roughly 2 miles by 1. The country rock seems to be a rotten pale granite (Van has a specimen from the little bay where we reached the lake shore after skirting it for perhaps ¼ mile on grassy slopes). It would seem that Lake Wanum, the part of the Oomsis creek valley

that we saw today, and a broad swampy depression to the north of the plantation along the Lae Road, were formerly one big lake. The talk is that no stream other than the 2-way gutter flows into the lake, and this gutter is the only outflow. The lake appears deep in general. The water is sweet and clear. Saw no signs of fishing by natives, but the lake is reputed to be full of crocodiles and we saw one big fellow floating well out from the shore. Some time postwar, and rather recently, I understand, it was proposed to use Lake Wanum as a source of hydro power for the supply of Lae. An elaborate survey went on for over a year (we saw a benchmark on a grassy slope above the little bay where we ended our walk this morning). Eventually it was realized that Oomsis Creek was the only stream which could feasibly be used to replenish the lake. The Oomsis is always of small volume except during flash floods of the wet season. It ceases to flow in at least most dry seasons. Therefore the imaginative hydro scheme was abandoned. From it we have an established elevation of 248 feet for the ground at Baker's house. We made the elevation of the lake but this has been up and down day for the barometer.

My plant haul for the morning was 18 numbers including 4 submerged aquatics and the Nelumbium, a scrambling Jasminum with fragrant white flowers, my first Hydnophytum for the trip, a Hypolytrum with conspicuous white inflorescences common in marshy places in this neighborhood, and a curious verbenaceous herb with four leaves produced from a wood rootstock and lying flat on the ground in the grasslands. This herb would seem to produce leaves and flowers only after burning of the grass. It wilted almost immediately when dug up in the heat of the day.

In zoology, we have a number of very small fishes caught by the younger whites with my butterfly nets, and still to be examined. A couple of species of aquatic snails. Some blue damselflies, and other "binatangs" (- insects & spiders). At 8 pm the SE breeze up the valley is still too strong for the insects to be emptied from the killing bottles. They would blow off my table.

Quite a bit of color film exposed on the lake this morning. All but Lionel and I went in bathing, but close to shore. The lake and its surroundings are really beautiful. The shallows sparkle with mica flakes. With a couple of thousand feet of additional elevation it would make a wonderful health resort.

Sunday, May 3. Continuation of recent weather, with even stronger wind up valley and during late morning as well as the afternoon. Still puffs of wind at 7 pm. Rigged extra shielding for my 2 drying ovens, but have had difficulty in keeping temperatures up. No rain for days now.

Finished my field work for the locality with a drive 2½ miles down the road to collect a fine, pink-flowered Schuurmansia which I got days ago but which fell to pieces then before I could get it into the dryer. My totals for the camp are 216 numbers of plants, including 14 mosses; 1196 sheets of phanerogams and vascular cryptogams. It has been necessary for me to take time for organizational work which could profitably have been spent in the field. I feel that I could continue with worth while results here for at least another fortnight. I have not even touched on most of the territory within convenient reach. More trees are in fruit than in flower, but about an ordinary average for lowland rain forest are in flower.

The SE wind, continuing into the night, has about ruined Van's bat shooting lately. Nothing shot at dusk last night; one small Miniopterus shot

Oomsis

late after dinner(about 10:30). This was one of a number of perhaps more than one species of bat feeding at that late hour, on a then bright starry but moonless night, about the top of a tall Octomeles tree. The assumption is that the bats were attracted by flower-frequenting insects. Octomeles has viscid small green flowers which are not sweet to my taste. The bats were also flying around a neighboring tall pink-flowered Evodia sp. Van has the very good total of 132 mammal specimens of 26-27 spp. for 18 days of work for this camp.

Turnover of native personnel limited my collecting of diurnal insects, of which the best results are in dragonflies. Three or four nights of light trapping yielded little variety and was therefore discontinued. The best representation in other than Odonata is perhaps in bugs and beetles (the latter largely weavils).

During the morning John Womersley and Lorrie Edwards drove out with mail, and a set of Mt. Wilhelm aerial photos and a stereoscope which Lorrie had carried over by air from the Forests Department in Port Moresby for our examination. The mail contained the first four of my Kodachrome pictures, forwarded direct by Willoughby's of New York; results very satisfactory as far as examined; some overlapping of frames on one roll; generally a little on the underside in exposure. I have good aerial shots of Keglsugl airstrip and the slopes above. The air pictures of the Forest Dept. show very clearly the route from Keglsugl strip to Lake Aunde (8300-11,400 ft.).

Van's herps for the camp number 64, comprised of 5 snakes, 25 frogs, 18 lizards, 10 geckoes, 2 turtles, and four toads (the latter Bufo marinus, the introduced giant toads?). Perhaps 8 spp. of frogs; most the lizards medium-sized brown skinks from the mammal traps; geckoes of 3 spp. (big banded tailed, house sp., and another).

Spent all afternoon and to 10:30 at night on figuring for the Mt. Wilhelm flights and carrier transport, after finishing lists of stores needed for the two months divided into two camps. Many weights can only be estimated (we weighed the boys this afternoon and found them ranging from 129 lbs. (the cook) to 100 lbs. (Van's Liklik). But the pattern is clear. My total weight on present figuring is 4157 lbs. in personnel and supplies to be flown in to Keglsugl from Goroka. We still have to learn what a single-engine Otter will be allowed to carry. Qantas men have indicated to John Womersley that it should be 2000-2200 lbs. But the civil aviation authorities will set the weight. Operational tables for the Otter at 8300 ft. (the altitude of Keglsugl) are not available in New Guinea, and have been requested from Australia. If necessary, John Collins will walk the boys over the mountains from the end of the jeep road at the head of the Goroka valley. This road goes about 30 miles from Goroka, and to within a day's walk of Keglsugl. John has offered to do this. We do not wish to make more than 2 flights to Keglsugl. The date for the lift in to Keglsugl is set with Qantas for Saturday June 6, weather permitting.

A change of weather here tonight. Showers began about 9 o'clock. Now, at 11, rain is pelting down steadily.

Monday, May 4. Last night's rain must have lasted until after midnight. Fine today, but mist on the mountains all day above about 3000 ft. A slight shower about 3 pm here at Gurakor.

Gurakor

Van and I both had a good bit of work to do on specimens this morning and we did not get away from the Oomsis camp until 9:40 for the 23-mile drive up the lower mountains to Gurakor at approximately 2200 feet (2150 at 11 am, 2300 at 7 pm). We are in the comfortable spare house of the Lutheran Mission. A timber house well built, with galvanized iron, ceiled roof, screened windows, and in the windows louvres in which the slats are of some kind of plastic board. Head of the Mission and our host is the Rev. George Horrolt, a stockily built, active looking German of late middle age who has been in the country since 1924. Have yet to meet Mrs. Horrolt. They have been away in the Wau area for several days and returned only this afternoon. She is down with a headache. Horrolt took part in the opening of the Mt. Hagen area for mission work in 1934, when he walked 4 weeks from Lae to reach the Mt. Hagen area. He also pioneered in the Kukukuku country. Speaks very good English, with an accent; also several native languages and pidgin english. Seems truly glad to have us here.

We arrived some hours before the return of the Horrolts. Parked at the road camp ¼-mile down the slopes on the main road, ate lunch out of our tucker box, and later fraternized with Jim Sullivan and Jack of the roads department when they got in for their lunch. Said fraternization consisted largely of beer. The frig was well stocked with bottles of the Lae brew, and fifteen x 2 doz. cartons were stacked against the walls. Got from Jim rainfall records for his camp for 1953-1958. Have not had time to average them out, but am told that the fall is a bit over 100 inches. May, on average, is the first month of good weather after the NW monsoon. Temperature in the living room of the road camp at noon was 77F.

While awaiting the arrival of the Horrolts, and the key of the house they had offered us, I went down to the Wampit River, 200-300 feet below the road by a rather steep path. A distinct floristic change from the Oomsis locality, but the slopes I saw was mainly second growths. Collected, however, about 15 numbers new for the trip. These included what I think is my first gathering of Equisetum in New Guinea. A few plants grew on the upper flood banks of the Wampit.

Have given John a good trial at the simple supply of the camp as it is now. He seems unable to think ahead. We left Oomsis this morning with the intention, planned about the middle of last week, of staying bush until the end of the month without replenishment of main lines of stores. Found on checking last night that we have supplies of some staples for only about 12 days. John spent Friday in Lae to do the buying. For the past two trips I have been obliged to carry the organizing part of the supplies and transport man. I suppose I can do it again.

Tuesday, May 5. A good bit of cloud today, but generally bright, and no rain. Black mist clouds about 1000 feet above us in late afternoon. Temperature this morning early was 70F in the house, the maximum noted about noon was 80F.

Have decided to call the elevation of camp 640 m. (plus 2100 ft.)

With a small boy named Mari given me as a guide by the Mission, I worked along the bottom of the deep and steep ravine of Gurakor Creek to about ½ mile above the Mission. Ravine narrow and very rocky. Big boulders of a rock akin to granite. Moist, shady conditions. Many mountain plants, including 2 Grammitis spp. which I would not have expected below about 4000 feet. Numerous genera

collected for the first time on this expedition: Gironniera, Asplenium, Hymenophyllum, Medinilla, Tecomanthe, Begonia, Lindsaya, Lycopodium, etc.

Van last night shot a Pipistrellus, a Hipposideros, a Miniopterus (the sp.) and Dactylopsila. The latter new to the collection. A Melomys (one of the Oomsis spp.)in traps.

Joe Havel, Forest Officer of Bulolo, called in about dark this evening on his way back from Lae to tell me that the New Guinea Gold Co. of Wau does not own a house we saw at Edie Creek on our visit a month ago and which we hoped to use for a stay of about three weeks beginning on Saturday (our tents & flies, all but one of each, have been air freighted in to Goroka for Mt. Wilhelm). The house said to belong to one Franklin. Joe has a man going up to Wau tomorrow and will have him see Franklin on our account. He admits that the Department of Forests has a row on with the gold company (which also is in sawmilling in a substantial way), and that the manager of NGG may not have spoken truth.

Wednesday, May 6. A day almost completely overcast; one slight shower about 9 am. Mountains round about, and the Finisterres or Saruwagets to the N, cloud capped all day. Weather seems warmer, but I do not have the max. and min. thermometers rigged.

A day of outs, for the great part. John has had an earache for the past 3 days. I thought it would pass away -- effects of swimming or something like that. But at lunch today it developed that the situation is much more serious. Possibly an abscess. So he has gone up to Mumeng to see the government doctor there, and will stay the night at Mick Leahy's place at Zenag. Havel expects to get a message to Zenag tomorrow on the results of his man's negotiations at Wau for a house for us at Edie Creek. It also developed, after John had gone, that Horrolt, departing to Bulolo this morning to buy some lumber, left the key of his house with John. John, of course, forgot all about the key when he left, and carried it with him, apparently. Result was not too serious. Horrolt broke through the mosquito screening of the kitchen door. Bare screening of windows and the upper half of doors is common practice in this country. There can not be much serious burglary.

My #1 boy Edewawa troubled with a swelling in the groin such as many natives have at times as an after effect of the yaws which almost all of them contract in youth. Therefore planned an easy morning to examine the logged-over area just beyond Pappy's coffee patch up the Bulolo Road and about on the same level at camp. The usual sad wreck of what must have been a magnificent primary forest of the same Anisoptera that is now being logged at Oomsis. The principal large tree remaining is an oak. This is a fair sized tree, but it must have been dwarfed when the dipterocarps were alive. Much timber is reported to have been marketed from this small area. A great deal lies slowly rotting on the ground. I walked along two great logs over 4 feet in diameter, and saw others. Actually they were the trees as they fell. Not cut into log lengths. It seemed to me that after felling these giants the exploiters found themselves unable to handle them on the ground, and left them. They lie with the brown, fissured bark still on them, and they are plentifully hacked by natives who have cut out for food the larvae of the big beetle which almost immediately attacks fallen Anisoptera.

Gurakor

Had very good collecting. Nothing outstanding, but quite a few species unfamiliar to me. I have 70 numbers for two mornings and a bit of an afternoon in the field. The oak-dipterocarp forest occupies a considerable area in the aggregate at about this 2000-foot level on the slopes of the Wampit Valley. It is a curious mixture, but we saw something similar floristically at our lower camp on Mt. Dayman in 1953, where a much less prominent dipterocarp (Hopea?) occured with the oaks above the lowland mixed rain forest.

Van is having thinner pickings that at Ooomsis, but for two days he has 9 species which is pretty good for this country.

Thursday, May 7. Light rain ran water into our tank about 10:30 last night. A beautifully bright morning, followed by a thunderstorm from inland between 3 and 4 in the afternoon. The country had been drying out somewhat; mosses were wilting on the trees of the ridges in the forest.

Spent the morning in camp to finalize our stores order for Mt. Wilhelm. My boys, sent out to collect, brought in 10 species of plants new to the collection, mostly from the primary forest above us on the slopes. Included were two lianas which I can not place to family on sight, the first Saurauia and the first Cyrtandra for the trip.

In Van's departments, traps yielded a gray-bellied Melomys and a Rattus exulans last night. He shot three small bats at dusk, got nothing from later hunting. Local natives , brushing a part of the Mission property, caught a bandicoot with great hue and cry and got a couple of shillings for it. Alan White sent up from the forestry camp 5 Pogonomys which had been cut out of a tree. In mail by the Works Dept. courier who comes up the road twice a week, were four or five very big-eared Hipposideros sent by Margaret Gilliard; they had been taken in a big cave about 20 miles north of Madang by Father Otto Shelley. Natives drift in two or three times a day with a lizard or a snake. The collections grow. Tonight the mammal total is 221.

Had last night at the light trap the best catch for the trip; a good variety of beetles and tiny things as well as microleps. Sorni, having had a little basic instruction during the past few days (I carry a net in the field), did his first independent insect collecting this afternoon. He was driven in early by the rain but brought a very good catch of five spp. of Odonata including a splendid big damselfly with upswept abdomen and wings of a rich velvety green.

John Collins looks very sick and pale today and his head is in a great bandage. In Mumeng it turned out that there is only a "liklik" doctor, but the M.O. from Bulolo happened to be there when John reported in yesterday. Treatment for his abscessed ear has been hot foments and shots of antibiotics. This will continue tomorrow. John was driven down by Mick Leahy this afternoon and is back at Zenag tonight. Our getting away from Gurakor for Edie Creek on Saturday looks doubtful. And, this afternoon there is a note from Joe Havel with the news that Bob Franklin was away yesterday and could not be contacted about a house he owns at Edie Creek.

Gurakor

Friday, May 8: Some rain late at night; misty and drizzly early today; bright sun about 9-2. Steady rain for an hour or so after 3 pm. Horrolt tells me that a little later in the SE season there will be must mist at this elevation and down the slopes of the valley to about Gurakor village, 2-3 hundred feet lower down.

The preparation of dried specimens to go down to Lae with the CWD courier made me late getting into the field this morning. That is, after 9 o'clock. Results, however, were pleasing with 19 spp. and 105 herbarium sheets collected. Today, too, I obtained a further insight into the character of the forest of this elevation. A common canopy tree which I have been taking for an oak turns out to be Castanopsis. At least one species of oak also is present and a major dominant. These two trees are the major dominants of the primary forest which I have seen here, and with them is associated, as an emergent larger tree, what appears to be the same species of Anisoptera that is being logged at Oomsis, 1500 feet lower on the slopes of the Hertzog Mts. My third (possibly 4th) species of Cyathea collected today. A very slender Freycinetia in addition to 2 spp. already collected occurs here. Have seen no Pandanus. Two species of Calamus have been noted in palms, a widespread Caryota, and today in a gully a young plant of what might be an Orania. Filmy ferns are turning up well and are surprisingly abundant in individuals and species for this very modest altitude.

Nothing new to the mammal collection. After attempts for three evenings, 2 small Miniopterus were caught with bits of worn-out mist net stretched in forked sticks as hand nets. The skin of a 9-ft. olivine? python added to the herps collection.

Mick Leahy drove down from Zenag again this afternoon. He has a more favorable report on John, who is in less pain today and eating a bit. The medico advises that he be off duty until Monday, an opinion I had already arrived at. This means a delay over the weekend at Gurakor. We still have no house to move into at Edie Creek. Jim Sinclair, ADO Wau, visited Zenag yesterday. He will contact Franklin of Wau and phone Joe Havel today on the results.

Today I have agreed to young Richard Leahy, eldest son of Mick, visiting our camp at Edie Creek after the 16th. Richard is 17, has passed matriculation exams for the Queensland University. A strange, rough, heavy browed young fellow who seems unable to smile. Still, he has been helpful in sending specimens to Van and seems to have a real interest in zoology. He wanted badly to come with us to Mt. Wilhelm. I could not agree to this. Apart from other considerations, about a week of Richard's company would probably be enough for any of us.

Saturday, May 9: Valley up to 2-300 feet below us filled with fog at dawn. Broken clouds until about noon, when light rain began and lasted an hour or so. Clear in late afternoon. The weather was coming in from the coast.

Spent the morning in the oak-Castanopsis-Anisoptera forest up the creek above Pappy Duff's coffee patch. Went to near the top of a steep knob, probably at about 2600 feet, where the slopes were too abrupt for the development of good forest and a Calamus took advantage of the open canopy to make my travel difficult. A stilt-rooted, branched Pandanus with insect-eaten leaves grew in this environment, and climbing on one tree was a great plant of what looked like Freycinetia pseudo-insignis. Collecting was poor, so I dropped down to the creek and followed

it down to near the main road. Found there several ferns new to the collection including a third Grammitis. A big, fleshy acanthaceous herb grew in colonies on open rocks. Various interruptions during the afternoon prevented my getting more than half of my plants prepared.

A social day -- to the disadvantage of our work. As I started into the field this morning I was called in to meet Mrs. Horrolt, who has been sick ever since our arrival, supposedly with malaria boosting temperature up to 104. A heavy German woman with serene face and direct brown eyes. Very much interested in her garden, and waiting for the time when, toward Christmas, her children will be home from school. The eldest is a son aged 22; there is a daughter Erika, and others. The children, when at home, scour the forests for plants for her wild garden.

In the afternoon a govt. veterinarian named Harry Rothwell and another govt. man called in to see Van. Rothwell was at the Animal Industry lab. at Port Moresby when Van worked there in March; recently stationed in Lae; inspecting the slaughtering of beef at Zenag. Later, Horrolt brought over John Turner, medical assistant i/c native hospital Mumeng, who had come down to see Mrs. Horrolt. In the same party was a young German named Stimm who for some time has been at the Lutheran Mission dairy at Malahang, outside Lae (the mission has a commercial dairy in competition with Mick Leahy in the milk supply of Lae, and has the advantage of a pasteurization plant). Stimm is a professional dairyman with an urge to travel. Has worked on a dairy farm in California, in Australia, and in a few days is heading back to Germany.

The damp weather, or something, is affecting the health of our boys. The cook's helper off duty today. My #1 flower-flower boy pretty sluggish and asked for medicine tonight. All lowland New Guinea natives, and many highlanders, are loaded with malaria and any climatic change is apt to lay them low.

John's trouble has been diagnosed at "tropical ear", a thing common on the lowlands of this area and attributed to an infection picked up while swimming.

Sunday, May 10. A beautiful crisp clear morning with a temperature of 68 inside the house soon after dawn. Rain for about an hour after 3 o'clock. Overcast tonight.

No field work today other than running traplines and preparing specimens on hand. I spent most of the afternoon making an inventory of stores on hand and packing them for a hoped-for move tomorrow. I thought John might have turned up tonight, but there is no news from him or of him.

With Horrolt and young Stimm, Van and I attended church service this morning. This was in the village of Gurakor, about ½ mile down the road. Church of thatch, with dirt floor except for the altar end, which was floored with sawn lumber. Probably about 300-400 people there, in the senior church. The juniors in about similar numbers were in a different building. Service started at 10, after Horrolt had given out from the pulpit mails which had come to him for the congregation -- most of the letters in red, white & blue airmail envelopes. Horrolt conducted the initial part of the service, a native teacher, in lap-lap shirt and barefooted, delivered the sermon (preparation for Pentecost next Sunday) and the concluding parts. All talk was in Yabim?, a language of the Finschhafen coast which has been introduced into this part of the country by the Lutheran Mission. The multiplicity of tongues is such (about 700 so far

listed in TNG) that teaching would be impossible with some sort of common language. The teacher put a lot of energy into his talk, but not enough to keep all of the congregation awake. Horrolt gave Van and me a running outline translation in a low voice, his breath smelling of tobacco and what seemed to be last evening's beer. We dined with Horrolt at noon, and had tea with him this evening. Mrs. Horrolt laid up with what seems to be a combination of malaria and the mysterious virus (?) complaint known as "Echo 6" which has been prevalent in Lae and perhaps other coastal parts since about the time of our arrival in the country. Meals in the Horrolt house were tasty, attractively served on good china (Mrs. Horrolt's father owns a porcelain factory in Germany), but, strangely, it seemed to me, nearly everything came out of cans. Most old-time New Guinea residents live very largely on the land, and are the better for it. Waiting on table were three young native girls with reasonable efficiency, very clean and bright, and wearing different dresses for each meal -- the very unsightly mother hubbard sort of garment which I have seen only in the Lae area but which perhaps is an introduction of the Lutheran Mission. One of the girls, and head of the kitchen, is a small lass from the Kukukuku country.

Horrolt and his family were taken from New Guinea upon outbreak of World War II and interned in Australia. Treatment was good after an initial two days in handcuffs immediately after arrival in Australia. Some American and other missionaries who remained in the Madang area were captured by the Japanese. Some were killed by American bombs; could not ascertain what happened to the rest. Horrolt's son George, 22, is in the Queensland University and aiming to enter the New Guinea forest service. His first choice was engineering, but the class was very big, passes said to be limited to a fixed number, and being German, he felt he would have no chance in it. Horrolt is a mature and broad man of tolerant outlook, but at times he can not conceal a bitterness about the treatment he and his people had in the hands of the Australians at the time of the war. He always speaks well of the attitude of the New Guinea officials -- at least the older men with experience. His chief objection to Australians would appear to be on the grounds of their limited viewpoint and pettiness.

Monday, May 11. John had a streptomycin injection at Mumeng before turning up at camp this morning. Although everything was packed and ready to load on the Land Rover, we were unable to get away from Gurakor until 10:30. The Horrolts seemed genuinely sorry to see us go. Probably it would have been unwise to stay longer. The one request that Horrolt made upon our arrival was that our boys be warned to keep away from the mission girls, who lived in three houses near the head mission house and the one we occupied. I therefore issued a solemn warning. But the girls drew their water supply from a rainwater tank at our house. And for the last day or two I had noticed some play of eyes when they came in the morning with their buckets. Three watch dogs roaming at night, and barking at the slightest movement, probably were sufficient insurance of the chastity of the female quarters for the short time of our stay.

At Patek Creek, at 3000 ft. on the road between Gurakor, we stopped to collect a fine Rhododendron with big orange flowers (#29509) which grew on a high bank above the roadway. An examination showed that a yellow species with somewhat smaller and more tubular flowers (#29510) was present. Nice finds, and at an unexpectedly low altitude.

Gurakor-Meari Creek

We arrived at Bulolo at 12:30 and interrupted Joe Havel at his lunch to find out that he himself had driven up to Edie Creek and arranged with Bob Franklin to give us the use of a house. Without lunch, we drove on 14 miles to Wau, were John bought a few items at BP's store and Van and I called on ADO John Sinclair. Sinclair very cordial. Has been stationed at Wau only 2 weeks. Has lately spent several years in the Southern Highlands. He was the government officer who went into the new "Shangri-La"Valley with an oil prospector in 1954 or thereabouts, and about which there was much fuss in the Australian press. Later, Sinclair established a government post in this (Nivani) valley. Radioed Buntings at Lae to send our mail on up care of ADO, Wau.

Left Wau about 2:30, and munched biscuits and chocolates (the boys too) as we began the 9¼ mile climb to Franklin's place. In this distance, by a narrow but for the type of vehicle we have fairly good road, we rose from 3600 feet at Wau to 6800 ft. at Franklin's Camp on a spur above Meari Creek (correct altitude probably about 6600 ft.). The Meari (pronounced Mary) is a right branch of Edie Creek. The old Day Dawn Mine and 10-head battery, owned by Franklin, is here. Franklin has a house a little above us on the spur. He was drunk when we arrived. Had with him Bill Bradley, works department man in charge of the Wau-Edie Creek Road and a new branch being built to the top of Mt. Kaindi. We followed this new road as far as we could about a month ago. Someone has said that Bradley was champion heavy-weight boxer of the British Army; he certainly has the physique, and he was sober this afternoon.

Our Franklin house has two small bedrooms, a livingroom with open fireplace, good kitchen with wood stove, shower room, and a deep-pit toilet in an enclosed part of the back verandah. The place looks crumby from the outside, but an inside view shows good sound construction of the fine Araucaria lumber of these mountains. There is some ffort at artistic framing of the fireplace and livingroom doors. Mining assayer's retort pots, painted blue and green, are bracketed on the walls to hold the flowers that some woman used to decorate her home. Temperature outside at 8 pm was 58 F., with drizzly rain falling.

Tuesday, May 12. Late yesterday afternoon there was rain. A foggy, early evening followed, clearing later. Temperature at 6:30 this morning 54 F. Tonight our open fireplace is in use. Some mist on the higher hills late today, but no rain.

A morning of reconnaissance. Van having 4 Rattus niobe (from 10 traps within 50 yards of the house) to measure, we got a late start on the drive of a mile or more up to Edie Creek. Met about half way two old timers, Tom Bubbers, who lives on the same spur as us and has boys working in the bed of Edie Creek, and Scotty Sutherland, who with Ned Partridge (absent with his sick wife) are tributing the gullies at the headwaters of Edie Creek from the New Guinea Gold Coy. Scotty rode with us back to his camp. A tall, spectacled, lean Scot past 60 who has been gold fossicking in New Guinea since 1926 and has been 9 years in this present stay at Edie Creek. Scotty made tea for us with water boiled in an electric jug (this area has electricity brought up the mountains from Bulolo). A bachelor doing for himself in a spotless small house with newly painted floors. Will not allow a native in the house. Sits up late reading such things as the Economist and Time magazine. A highly intelligent and well informed man with a cheerful if hard-headed philosophy of life. Later showed us three of the boxing shows he is working with a total of 39 Watut boys. Says they are getting just about enough gold to be payable. Saw some of the coarser stuff being panned with quicksilver by two natives. The gold contains much silver and is worth only 7 pounds an ounce (standard price is over 15 pounds).

Meari Creek-Kaindi

From the workings we followed the wartime Bulldog Road for about 1½ miles to the divide between Edie Creek and the Watut (or head of Wau Creek?). Road grown over with brambles, etc. all but a small trail, washed out in places, and no longer passable for vehicles. It goes 60 miles to Bulldog Landing on the Lakakamu in Papua. Troops walked it in three days. Twenty-five pounders, ammunition and food supplies were brought over it for the Batlle of Wau. Followed a good native track which went straight down the forested slopes from near the divide to the old dam above the gold workings on Edie Creek.

Time lost in visiting cut down my results in plants but I collected 16 spp. including 3 of Rhododendron, a Vaccinium and a Dimorphantera, the scrambling bamboo of the area, and an Elaeocarpus of the second growths. These are true montane forests, rather heavily mossed on the spur we followed down from the road. I expected the dominant trees to be Nothofagus , but the bulk of the trees were Castanopsis, Phyllocladus was plentiful. A number of species could not be recognized from the ground. I would call the forest we saw Castanopsis-Phyllocladus forest. Say four Rhododendron species in addition to those collected, all sterile.

The general area in which we are camped was called Kaindi in the early mining days. Have therefore decided to call the collecting locality Kaindi rather than Meari Creek. Average altitude is about 6750 feet by our aneroid.

Had Bob Franklin and Bill Bradley to dinner in the evening. Learned that a Mrs. Emory, of Wau, has for some years had the mining boys of this area scouring the mountains for orchids. Mrs. Emory said to have a fine collection of slathouse plants, native and exotic.

Wednesdy, May 13. Overcast day with a lot of drizzle and a few light showers; sune broke through briefly at times in late afternoon. Temperature at noon on our front porch was 70 F. Weather is from the SE.

Collected up a water race that fed the old Day Dawn battery from an intake about ½ mile up the main Meari Creek. All second growths and open clayey slopes, but I gathered 29 species including 9 bryophytes. The only local second growth element familiar to me is Homalanthus populifolius, which is fairly common. Have not seen enough of the second growths to list the chief dominants, but among them are two spp. of Saurauia, one with big leaves and very bulky inflorescences, the other with crowded oblanceolate leaves. Four ferns included 2 Hymenolepis spp. and a terrestrial Pteris, the latter from a stony landslip. Saw my 8th species of Rhododendron for the locality; apparently R. macgregoriae, but past flowering. Was surprised to find a Gaultheria on the clayey open slopes. Colonies of Gunnera occur on slight terraces along the creek.

About ½ dozen small rats from traps, comprising R. niobe, R. verecundus, and a rather unexpected R. exulans. Van and John, accompanied by Bill Bradley, went into several old mine tunnels this afternoon but saw not a bat. In attempts at dusk shooting, only one species of small bat has been seen. The three white hunters, plus Hetanin and Kim the cook have gone up the Mt. Kaindi Road into the big primary forest tonight after dinner. Later: in 1½ hours nothing seen up the road except bats.

For a ridge which looks sterile in daylight hours, and a locality with few bats, this has proved surpsisingly good for the light trapping of insects. Had a good, varied but not large catch last night. Now, at 8:15, things are coming in

again, dropping into the trap, and settling on the white-painted wall of the front porch, where I pop them into killing bottles.

Thursday, May 14. An uncompromising dull morning preceded a day with more than 50/50 sunshine. High cloud drift still from the SE. No rain after daylight; light rain for some time after 3 am.

Botanized up a high level water race of the Day Dawn Mine to its intake dam, perhaps a mile from camp and 500 feet above it on a feeder of the Meari. All second growth forest in which, on the narrow crests of spurs, I had good collecting. The take included 2 Quintinia spp., 2 Rhodomyrtus, a Timonius, Trimenia, Pittosporum, climbing Tecomanthe with solitary big pink flowers, a stout bignoniaceous climber with solitary deep red flowers which could well be a new genus, and, from clayey landslips, a big-leaved Vaccinium with green flowers and one with pink flowers.

At the dam I saw two species of dragonfly, and caught both (one a big one like Anax), and a damselfly which eluded me. These the only Odonata seen in the locality so far.

Forest Officer J.J. Havel of Bulolo arrived and will be with us until Saturday to gain a knowledge of the montane flora. This afternoon he made notes and drawings of several of the more important second growth trees. Joe has been designated to head a forest ranger's school planned to start at Bulolo two years hence. A class of about 15 expected. A 3-year course consisting of one year of general education above 9th grade, and two years of forestry. Joe is a very pleasant and capable "New Australian", who migrated from Czechoslovakia in 1948 and was educated in Western Australia and the Canberra Forestry School.

Friday, May 15. Heard water running into the 50-gallon drum which serves us for a tank through a good bit of the night. A drizzly, gusty dawn, but the weather took up later and by 11 o'clock there was some sunshine. Showers late in the afternoon. Seems that we are on the edge of a big SE disturbance.

The weather, and my having to start up both drying units, made me late in getting into the field. With Joe Havel and my two boys, and John driving the Land Rover, we left for Mt. Kaindi at 9 am and returned to camp at 2pm. Drove up the new road to the radio-telephone repeater station as far as we could -- a matter of two miles and a bit. Road very bad in places and we would not have gone far without chains on the back wheels. From where we left the Land Rover a grade continues for perhaps half a mile, in places a good wide road and in other parts a pack track. The last ¼ mile was a mere pad through the debris of the completely felled forest which until maybe a year ago covered the mountain top. The repeater station, unattended, stands in a clearing of about 2 acres. Two aluminum buildings and a 96-ft. tower. Broken windows let rain into the powerhouse, and water lies on the cement floor. One building is for the accommodation of visiting personnel. Sign outside "Kaindi Kuntry Klub." The mountain reputed to be 8000 feet high; we could make it only 7750 by aneroid.

The forest of the lower slopes of the mountain (from about our camp level of 6800 feet) is dominated by what John Womersley calls Nothofagus grandis. From about 7400 feet to the summit another Nothofagus takes over. This has small leaves, and until I had a small one cut down, I thought it was a Zanthomyrtus.

Kaindi

The beech grows to about 100 ft. high and a diameter of at least 3 feet, is widely branched and somewhat flat-topped. With it as a big tree is an occasional Phyllocladus. Podocarpus imbricatus (?) forms a big tree of the upper layer now and then and is common in the subcanopy; P. pilgeri is common in the subcanopy; a few big broad-leaved species were not recognizable from the ground (one was Lauraceae). In the rather hasty collecting, most of the time with poor visibility, I found 2 Rapanea spp., Bubbia, Symplocos, and an Acronychia as undergrowth small trees. The scrambling bamboo collected a couple of days ago was prominent but presented no problem in getting through the undisturbed forest, so far as I could see. Noted as substage trees were the small-leaved Zanthomyrtus (or Decaspermum) collected yesterday in second growths near camp, Quintinia (also collected yesterday), and an Astronia. Soil on top was a leached gray under a thin peat layer covered by a thin litter layer; subsoil yellow and clayey; road cuts through crumbly dark gray slate on some point of ridges.

Van had four rats in traps set in older second growth forest across the creek. From five traps set in his house, Bob Franklin produced 2 rats and 2 Mus musculus. Much shooting at bats down on the bank of the Meari last night, Bill Bradley participating. Sounded like a Chinese new year celebration. Results: a Pipistrellus and a Miniopterus, the former new to the collection.

Saturday, May 16. Threatening dawn later clearing into the second best day of weather we have had here. Still little sun. Some heavy rain between 4 and 5 pm. Misty drizzle prevented bat shooting this evening.

A blank from traps last night. Most of the traps (Van has less than 100 with him, all told) were set today in the primary forest which we walked through above Edie Creek on Monday. Van has had the local employers of native labor talk to their boys about bringing in mammals. This afternoon he had the first results when a Kukukuku of the road gang came in with good specimens of Anisomys and Pseudocheirus corinnae, which he said he had got by climbing trees on the mountain above us and pulling the beasts out of hollows. Yesterday both John and I saw rats on the roadside high on the mountain.

With Joe Havel for company, I worked along the road for about a mile towards Wau, collecting mainly second growth elements. Also collected meager fruiting material of Nothofagus grandis, the overwhelming dominant of the remaining scraps of forest at about camp level, and, I now think, the main element of the former forests round about here. The beech was partly leafless, the upper branches in a pale green flush of young leaves among which were abundant male flowers, out of reach (got only some lower branches produced on one tree as a result of injury or exposure after felling of the surrounding forest). A Mallotus (?) and a Homalanthus the principal second growth elements (with three spp. of Rubus, they were the dominants in very young - 3-4 ft.) regrowths on top of Mt. Kaindi. With them 3 or 4 Saurauia spp., at least three figs, a cunoniaceous tree with red young leaves, long-leaved Eurya, etc. On high, clayed road banks I found still another Vaccinium and another Dimorphantera of the Ericaceae. I am saving fragments of all Ericaceae for Sleumer, who is revising the family for Flora Malesiana. Now have at least 3 dimorphantheras and a half a dozen vacciniums, a Gaultheria, and five or six Rhododendrons.

So far we have had no sickness at Kaindi. Hope our luck holds. Practically all of the 40 boys employed on the roads have gone down with the mysterious Echo 6

disease. They were sent down to the Wau native hospital and soon returned. About all that can be done for the sickness is dosage with apsirin. A day or two of 103-104 temperature is usual.

From Havel I learned that Bulolo reforestation now amounts to 3900 acres, 1100 of which were planted this year. Oldest plantings (practically all plantings are Araucaria cunninghamii) 9 years old and average 7 feet of height growth per year. Exploitation and reforestation are being done on a 50 year rotation if the foresters have their way, a 30-year rotation is desired and being pressed for by the company. The tallest "pine" measured in the Bulolo forests was an A. klinkii 284 feet high. The species runs up to about 6 ft. in diameter. Management of the Bulolo gold and lumber company said to be very inefficient. An overload of European personnel. White men doing work that natives could do. As the gold mining cuts out the white personnel involved is being put into the lumber part of the business, in which they have no experience or interest. Ordinary sawn lumber for building purposes costs 6 pounds per 100 super feet to the public. Royalty paid on first class coniferous lumber is 6/- per hundred; second class (tops, etc.) 2/-; hardwoods 2/-. This is an abnormal season for weather at Bulolo; some wet season months were dry; May, which should be dry, has been wet.

Sunday, May 17. A breeze from about E across the mountain spoiled my light trapping until the lamp was put out about 10 o'clock. Very heavy rain accompanied by what must have been a gale-force wind, began about midnight and continued for round about 2 hours. A wild looking dawn, but the day mostly clear and no rain. A day's weather about as good as last Monday's.

Sent the boys into the field after we had worked on dried specimens, and myself checked estimated weights for the Mt. Wilhelm freighting flights. I can't get them down to 2 x 2000 lb loads without our dropping a boy or some personnel walking in from Goroka to Keglsugl. Our present cook's helper is pretty useless, but firewood will be a problem at the top camp and one must expect to be short handed at times through sickness in native personnel.

From traps set above Edie Creek settlement Van took 2 white-bellied Rattus last night; A dog from the settlement was caught in one of the steel traps and carried it home with him. A marsupial mouse, the first for the trip (an Antechinus of the flavipes group, perhaps, thinks Van) was trapped in Nothofagus forest second growths across the creek from our camp. A somewhat expected appearance of weekend hunters from the local labor forces with things to sell failed to eventuate. Van and John are jacking along the Bulldog Road tonight.

Machinery, new and old, has a fascination for John. Today he walked from Edie Creek with a guide supplied by Scotty (George)Sutherland to inspect a Pelton-wheel generating plant on the Little Wau Creek, a walk of 1 3/4 hours from Edie Creek and 2¼ hours return. The plant (Pelton wheel alone estimated to weigh 1¼ tons) was taken in about 1938-39 by Bob Franklin, presumably to supply power for the Day Dawn Mine, and never installed. About 30 Watut natives now working alluvial gold on that part of the Little Wau; a patch of about 50 acres of primary forest recently felled for gardens and now being planted with sweet-potatoes, pit-pit, etc. These natives said by Sutherland to be getting good gold. The Pelton wheel alone of the generating plant considered by John to have any value now; the electrical gear, including 4 transformers, has deteriorated beyond repair. All the machinery is lying in the bush without protection from the weather.

Kaindi

Monday, May 18. An overcast, gloomy day; brief spells of sun in late afternoon. Local men are remarking on the rainy weather in this, usually the driest month of the year.

Botanized along the Mt. Kaindi road to about the 2200 m. level. Most of the way in Nothofagus grandis forest, badly knocked about by road building operations, but near my terminal point the country levelled somewhat, the forest was little disturbed, and a small-leaved Nothofagus replaced grandis. This second species may be the same as the species of the summit of the mountain, but the material of this latter species has been dried and put away and I can not compare the two. Phyllocladus is a common big tree (even bigger than the beeches) all through both zones of the Nothofagus forest. Several occasional tree species could not be recognized from the ground. Collected a small-leaved Ilex of the subcanopy layer. Poor visibility made spotting difficult, but I collected about 20 spp. all told.

Nothing in traps except a Rattus niobe which has been gnawing at the boys' biscuits in the kitchen for more than one night. However, three good mammals were brought in late in the day by mining boys who perhaps got them yesterday: Phalanger gymnotis, Pseudocheirus forbesi (very small pale brown), and another P. corinnae.

Were visited during the afternoon by Bert (A.E.) Jentzsch and Horrie Clisold. Bert owns an apparently prosperous mining show up Meari Creek not as yet visited by me; a big, clean, elderly man with open face, good presence, and an accent English if anything. He is leaving Wednesday for a two-months holiday in Australia. Clisold will rune the mine in his absence. Heavyset, blustery, ginger headed man of perhaps 40; says he is collecting birds for Alan Keast of the Australian Museum; claims wide knowledge of the local fauna; to be taken with reservations, I feel.

Called a conference in the evening to discuss final arrangements for Mt. Wilhelm. Have spent a lot of time in figuring weights, but can not get the total below 4100 pounds and the plane will lift only 4000 pounds in two flights. The best solution I have been able to arrive at was 1) fire the cook's helper, who is useless, anyhow, and thus reduce boys to five, 2) plan two comfortable loads for the plane (most weights can only be estimated in advance) and carry in the remainder from either Kundiawa (Chimbu) or the head of the Asaro Valley. Van and John agree to this. Kundiawa is two carrier days from Keglsugl by a good patrol road which will be made trafficable for jeeps in the near future. John says Keglsugl can be reached from a mission at the head of the jeep road in the Asaro Valley above Goroka in one day of walking, but he is not sure about it. He offered some time back to walk some of the boys in by the Asaro route, but I am very reluctant to split the party at that phase of the approach to the mountain. There would be too much opportunity for things to go wrong. The carrying in of some of the supplies will eliminate anxiety about loads for the plane, and allow our paring of weights to be a little less fine.

A big batch of mail sent up from Wau contained, at last, a bill for the Land Rover and trailer which we bought from Burns Philp on March 25th. We seem to be trusted in that quarter.

Kaindi

Tuesday, May 19. Heard light rain on our galvanized iron roof several times during the night. The usual doubtful dawn followed by clearing and good bright sun from Mid-morning to the end of the day.

Botanized up the road as far as Edie Creek. Nothing exciting, for most of the vegetation was second growths. A wet, open gully yielded a fine pink-flowered Begonia, an unfamiliar Marattia, and several other herbaceous plants new to the collection.

Most mornings in the field I get wet feet. Our $25 W.C. Russell Moccasin Co. boots let in even the water from wet grass. The only boot dressing we could buy in New York is worthless. Nothing of the kind is procurable locally. We are now trying Kiwi boot polish rubbed on our boots after each wearing in the hope that in time it will make them watertight.

A big catch in traps from a new line included two more marsupial rats, besides the common Rattus niobe. Van and John left in the Land Rover after 4 o'clock to camp at the repeater station on top of Kanindi Mountain. They will set traps, try for bats, and jack in the upper beech forest tonight.

Wednesday, May 20. Woke well before daylight feeling cold in my unzipped sleeping bag. The reason was apparent when I got out of bed at 6:15. Temperature on the front porch was 46F, lower by 8 degrees than any morning here so far. A clear, quite cloudless dawn followed by a glorious day of bright sun pleasantly warming after all the miserable weather we have been having. Mist closed down about 6 pm; a smart shower fell at 7; not, at 8; there is more mist and the night is quite warm (62 on the porch).

Van and John returned from the mountain top about eleven am. They jacked until one this morning for a Pseudocheirus cupreus and another which could not be recovered. Another example of the big Pipistrellus shot at dusk. Four Rattus niobe taken in traps. Seven specimens of a small green ground frog new to the collection. Van enthusiastic about the view from the mountain top at dawn. Many photos taken.

I had a big morning. Went first to Bert Jentzsch's mining camp high on the Meari and 25 minutes walk or thereabouts from our camp. Came first upon a group of about 6 Goilala boys working a gold box in the creek. Creek almost a gorge which must have very few hours of sun in any day. Boys in the usual gray flannel, short-sleeved shirts. These boys spoke Motu and pidgin English. Beyond where Jentzsch lives, in a small, tight house on the slope of the ravine, the track continued up a steep incline on the east side of the creek to an underground mine owned by Jentzsch. Three timbered drives on different levels were cut into the very steep slope of Kaindi Mountain. Gravity fed from them was a five-head stamp mill of "portable" type driven by a Petter motor. The mine, crushing plant, and everything of Bert's applepie order and showing evidence of careful and skilled planning. Five boys working underground wore plastic helmets in addition to flannel shirts. One boy shovelled the rubbly material from the mine into the hoppers of the battery. Another was tending to the tailings, gradually building up a dam, reinforced with horizontal sticks, to prevent the sludge from flowing into the creek and being lost. The Waria River boss boy of the mine, who said he had been with Jentzsch for "two tens and eight" (28) years, picked a few pounds of material out of a small open-cut working above the drives, carried it up to a water race in a dish, and in at most a minute exhibited a fine prospect of very fine, richly colored gold.

Kaindi

The mine must be very payable. The boys, without supervision, were working as well and as interestedly as if they owned the show. Jentzsch must be a good master. Several of his leading boys have worked for him for years, he says, and several are paid 5 pounds a month, which is good pay for this country. Boys who stay with him get a monthly increase of 5/- after every year of service.

Followed the Jentzsch water race about half mile up the slopes, then climbed a steep pinch to Cash's Camp, only an estimated 300 feet below the summit of the mountain. Cash, an old timer who was working good leaders with boxes, died last November. His house is vacant. Seven of Jentzsch's boys live in three well built galvanized shacks. This and all the slopes above Meari Creek on my route were in the upper beech forest zone. I saw few big beeches, however, though Phyllocladus and Podocarpus papuanus were prominent. Returned down the mountain by an old path which followed a main branch of the Meari. A long morning, but collecting was good.

Returned to camp at 12:30 to find there Horrie Clissold and a stranger named Ryan of the Lae police force who had got a lift most of the way up from Wau on a Roads Dept. truck and walked up the new road to the top of Kaindi Mt. Ryan a clean, pretty well educated type who has done some wandering. Was 14 months in the Toronto police force in the early fifties and travelled extensively in the U.S. Clissold the loud, it turns out, is a son-in-law of Jentzsch. Ryan holds the rank of Sub-Inspector, the junior rank for a white policeman in P-NG since the war. Pre-war, Port Moresby had one white policeman, with the rank of constable. Ryan is on local leave and seeing a bit of the country.

Thursday, May 21. An overcast and much warmer early morning was followed by another fine day without rain. Some cloud tonight, but the almost full moon and many stars are showing at 8:30.

Took advantage of the good weather to cross the valley westwards to the Bulolo-Watut Divide. A good old jeep road crosses Edie Creek just above the junction of the Meari and climbs to Slate Creek and the abandoned Enterprise Mine. The buildings of this mine, formerly managed by Jentzsch, are at an estimated 6500-6600 ft. A steep track goes up a grassy and ferny slope and into second growth forest, and about 300 ft. above the Enterprise cuts a formed track coming from the direction of Edie Creek mining camp and there reaching the top of the divide. Followed this old pack road for 1/3rd to ½ mile through second growth forest. The track travelled somewhat but not maintained, and often deep in mud and slush. Forest apparently was Nothofagus dominated. One mining drive seen, and several costeens cut the track. When primary forest was entered I could not recognize Nothofagus with certainty, but Phyllocladus, Podocarpus pilgeri and P. papuanus were there. Also some sapling Papuacedrus, a big Schizomeria sporadic in all the beech forests of this area, and, commonest of all, a small-leaved tree with usually very straight bole (sub-canopy and sometimes canopy) which Jentzsch uses for mine timbers, and as yet not found in fertile condition by me. Where the track forked, in fine tall primary forest about a mile from the Enterprise, one branch descending toward the Watut River, the other continuing along the crest of the divide in the general direction of Bulolo, the forest was dominated by brownish leaved Castanopsis and great, blackish boled Phyllocladus. The canopy rather open and in consequence, the small-leaved scrambling bamboo (everywhere in fertile condition) ran rampant. The altitude must have been about 7000 feet. No Nothofagus seen there. The only other Castanopsis-Phyllocladus forest I have seen was at the head of Edie Creek, above the mining camp.

Kaindi

John accompanied me to prospect the country for wallaby signs and set a few steel traps. He followed the Watut branch of the train, and, descending some distance, got into tall primary forest described as open underneath (oak-Castanopsis?). We got back to camp at 2:15.

Young Richard Leahy arrived about noon to spend some time with us (no mention made of how long). Brought a boy and plenty of food. Bill Bradley dropped in about 5:30 with some fresh meat he had brought up from Wau. Tackled our O.P. rum; could not handle it well; stayed to a rather noisy and late dinner of Kim's curry and rice, preceded by mushroom soup of the Maggi variety.

A surprise package for Van from Clissold this morning consisting of a box containing a dozen small Miniopterus caught by the mine boys last night in an old mining drive.

Friday, May 22. An early mackerel sky cleared away and a fine day followed. Mist came up over the mountain top from the SE at intervals after 11 am. (the valley below us was filled with fog early this morning). Mist on the mountain this evening, and a sprinkle of rain toward dusk. The several rainless days have exhausted the 100-gal. water storage at our cottage, and we are carrying from the ample tanks of Bob Franklin.

Took advantage of the fine day to visit Mt. Kaindi again. John drove me to the end of the vehicular road at 7400 ft. and from there I botanized to the top of the mountain at 7750 ft. Collected a nice lot of subcanopy and substage trees in flower (a number of them just coming into flower), among them a golden-pubescent Pygeum, a second Polyosma for the mountain, an Acro ychia which seems to be the preferred timber for mine props, and about the fifth sp. of Eurya for the locality. Almost every tree species collected had obtuse, convex leaves, quite a number of them with actually rounded leaf tips. Almost every day I add something new in Ericaceae. Today it was a very slender, pendent, epiphytic Vaccinium with pink flowers tipped with green. Returned to camp by the short cut in 55 minutes; down the power line from near the summit of the mountain to Cash's Camp, thence down the branch of the Meari which I followed a couple of days ago.

A woolly Melomys started to turn up in traps a day or two ago (a line trapped out of the abundant Rattus niobe) and this morning there were four of them. Nothing shot for the last several nights. Moon too bright for jacking. John and young Richard tried for the wallaby along the Bulldog Road last night and saw nothing. Tonight they are on the Watut fall where John set steel traps yesterday. Took food, and will jack back.

Saturday, May 23. Fresh wind blowing down from the SE at dawn, with heavy clouds, and mist on the high places on and off for a good part of the day. Clear this evening. No rain.

Went up the mountain again, this time driving to near the end of the motor road at 7400 feet and walking back along said road. (What I have been calling Cash's Camp turned out today to be an old camp of Jentzsch's. Cash's Camp is in the next ravine to the north on the west slopes of Kaindi Mountain). Collecting rather poor. I seem to have most of the plants collectable at this time. Today's special prize was a common and conspicuous Dimorphanthera with almost white flowers; about the 4th sp. of the genus for this locality.

Kaindi

The mammal department struck it rich last night. John found a Melomys new to the collection in his traps on the Watut fall, shot a Dactylonax and a Phalanger vestitus in the tall primary forest of the range crest on his way back to camp (arrival about 10:30). Only a couple of the common rats in traps. But this afternoon there arrived from Joe Havel a jar containing two Syconycteris in pickle and, a real prize, the very rare Phoniscus, apparently unknown previously from T-NG. Four species new to the collection in 24 hours (the Melomys, Dactylonax, P. vestitus, and Phoniscus.

The bats were brought up to our camp by Mike Kazakoff, forest ranger at Wau, who was accompanied by one Ross of Forests, Bulolo, and two female school teachers from Bulolo. Havel sent for me ample material of Podocarpus amarus (with big red fruits up to nearly 3 cm in diameter) and P. neriifolius. The visitors brought a picnic lunch with them and planned to go on to the top of Kaindi Mt.

Sunday, May 24. A snappy 48 degrees this morning. Some cloud during the day but generally clear and no rain.

Worked about half the day on plants, the rest on completing payment of April accounts and writing letters. My boys, sent out for a couple of hours in the morning, especially for Rhododendrons on the hard bare clayey ground of extensive old mine workings across the valley, brought in three closely related species or forms with small red pendent flowers and small leaves. Also a ground orchid of genus unknown to me which I last remember seeing around our grassland camp in Murray Pass in 1953 (an Australian element, I think. All of my very numerous orchid specimens lie undetermined at Harvard).

Only a few common rats in traps. A Chimbu boy named Wok, brought by Richard Leahy, brought in from a snare he had set the first Lorentzomys for the trip. Jacking up the Mt. Kaindi road last night yielded another Pseudocheirus forbesi.

Late in the morning our meiner-economist neighbor, Scotty Sutherland, walked in from his camp at Edie Creek and asked to be driven down to Wau where he had a sick boy at Franklin's plantation. High talk at lunch before John drove him down. But it seems likely it was mainly the effects of dry horrors. After taking his sick boy to the native hospital, he repaired to the pub and started in on double rums. This evening he is blind as a bat and refused to be brought home. We learn now from men who know Scotty that this was expected, but all had the good taste not to mention his weakness before.

Monday, May 25. Change of wind to the south and somewhat cloudy and warmer today. Clouds heavy and black at times in afternoon, but no rain. We are told that down at Wau the weather is hot and dry.

Had John drive me down the Wau road a couple of miles (to Blue Point) and botanized back. Collected mostly ferns; nothing spectacular. Noted, however, that a gray-foliaged Quercus of which I have seen perhaps half a dozen scattered examples in the Nothofagus forest during the past two weeks, is common on narrow and steep spurs which descend to Edie Creek from about road level (6600-6500 ft.). This suggests an orderly (according to LJB) succession from midmountain oak to beech forest with increase in altitude on these mountains.

Kaindi

During the morning Bert Jentzsch's boss and gun boy came down with his mammal catch for the weekend, some of it badly damaged, some a bit high. Six sizable mammals all told: the prizes being a great Hyomys (gray with whitish belly) 32 inches long and the mountain Dorcopsulus (blackish and weighing about 4 lbs.). He or his dogs had also caught and killed one of the tree-climbing kangaroos but during the night it was partly eaten by the dogs, and this morning thrown away, apparently on the instructions of Clissold. Clissold knows just about enough about natural history to make mistakes of that kind. Van last night, across the valley on State Creek, again saw Petaurus but failed to get one. John and Richard are out tonight on the Bulldog Road.

The dark sky after the passing of full moon, and the warmer and moister air, are making insect catching profitable tonight after a lean spell of about a week. So far as I can judge, the numerous insects being caught at the light are almost entirely different from those taken before at this camp.

Tuesday, May 26. Overcast much of the day, with mist cutting off the nearby mountain-tops; a shower between 1 and 1:30 pm; air movement from about east.

Made this my last morning in the field for this camp as specimens have to be dried in readiness for an early start for Lae Thursday morning. Had John drive me down the road toward Wau to the 6000-foot level and later pick me up at about the 6500-ft. mark (if there were an altitude marker). Did not find many plants not already collected. Noted however that Castanopsis and a second oak occurred between 6000 and 6500 feet; there were no beeches there. But beeches (N. grandis, I think) dominated the primary forest of the southern skyline several hundred feet above me. The slopes I was on were largely covered with second growths following disturbance by mining and road building. The slopes very steep indeed. My far point was an estimated 3 miles down the road; past the camp of gold fossicker Sid Barker nera Meari Creek.

Including two collections sent to me by Joe Havel, I have 288 numbers for this camp, 30 of them bryophytes; herbarium sheets number 1451 for the two weeks and two days. These results are pleasing. The area was virtually unknown botanically prior to our coming. I should say I saw at least another 100 species which were not in collectable condition. We are here at the beginning of a flowering season and quite a number of tree species have flower buds too young to collect as identifiable material. It is generally recognized that in New Guinea forests there are two rather general flowering seasons: one at the beginning of the local wet season, the other at the beginning of the dry. The present flowering at Kaindi is at the start of the dry season.

The hunt along the Bulldog Road last night yielded nothing an no mammal was seen. Fifty traps of various kinds set an Slate Creek on the opposite side of the valley in the locale of the old Enterprise Mine, produced a fine specimen of Parahydromys - another first for this expedition. This evening Van, John and young Richard, with a Goilala boss-boy guide from Horrie Clissold, are out one the Watut slopes. They left about mid-afternoon with the intention of examining some old mine tunnels for bats, and jacking back. Brought in at dusk by one of the road gang Kukukukus, and bought by me for 3 sticks of tobacco and some paper, was a Pseudocheirus forbesi, from "big bush on top (of the mountain)) true."

Kaindi - Lae

Work for the road department in this area is a cushy racket. Bill Bradley is boss for the 1¼ miles above us to Edie Creek and the 2-3 miles of new road up Mt. Kaindi. He comes up from Wau about noon on Monday and returns at noon Fridays. Every day, in fact, they sally forth armed with bows and arrows (the arrows 5-pronged or blunt-headed, for birds). Picks and shovels are left on the road, where they get use now and then. Down towards Wau today I saw perhaps 20 road boys scattered on various jobs and about half of them working. Somewhere about the 2-mile of spread-out of labor was a white man sitting in a truck. Bradley helps old Bob Franklin with his rum Monday afternoons. Last night about 10 o'clock he was out in the night yelling at the moon, or just yelling.

Wednesday, May 27. Waking to pump the lamp of a plant drying outfit which I had going through the night, I heard a good deal of light rain. A few light showers today; gusty E to SE wind at times; mist on the heights about us at times. A report that the weather in the Wau valley is really overcast; we are above the worst of it.

Last night's was the last trapping for the locality, and it brought in the almost customary new addition to the collection, this time *Peroryctes longicauda ornata* (?). That was the only animal in traps. Van has been carrying and setting a few live traps. Not a single mammal has been caught in them.

Van and I busy packing collections and gear. My afternoon spent on the seemingly endless figuring of weights for the transport in to Keglsugl, and out again.

Richard Leahy returned to Zenag this morning, John driving him down to Bulolo, where he caught the milk truck to Zenag. Young Richard improved greatly on acquaintance. For a lad of 17 he is exceptionally serious minded and well informed. He needs training in tidiness as regards personal belongings. Leaves things scattered all over the place.

Bob Franklin has taken on as helper this week 73-year-old Frank Brandon. Both came down on the invitation of Van to wish me happy birthday this evening. Three drinks before dinner finished our whisky. Much talk about mining in New Guinea. Frank spent some time on Woodlark Island and knows the few whites now there. After they had gone home we got down to a semi-final discussion on the air freighting in to and away from Mt. Wilhelm. As far as I can figure it, the air freighting is pretty well in hand. To return from the mountain we will either have to have two charter flights, or most of the personnel walk out. The cost of the air charters will determine this.

Thursday, May 28. Having partly packed the Land Rover and trailer last night, we got a 7:20 start from Kaindi this morning and, after numerous stops, arrived at Lae at 4:45 pm. Weather good; road not very dusty, although our six boys, sitting in the back of the Land Rover, were gray rather than brown upon arrival on the coast.

First call was at the Franklin plantation house close above Wau, to meet Mrs. Franklin. An attractive and capable, slim middle-aged woman in jodhpurs. Her living room very tastefully arranged and containing some good furnishings. Fine view of Wau and the Wau valley from the verandah. Colorful cannas and dahlias in the garden. The Franklin family lived 20 years at Kaindi. Their one son an officer in the Fleet Air Arm.

Kaindi - Lae

Called next at the sub-district office in Wau to see ADO Jim Sinclair. Very cordial. Half sick with the mysterious "Echo 6" for the past ten days. The Wau-Bulolo district has been hardest hit in the Territory with this complaint. Sinclair an ardent camera man (Contax). Has in his office some exhibition grade portraits of natives of the Highlands.

Next call was at the Forests Office at Bulolo. Met there Don Mackintosh, Regional Forest Officer; friendly, forceful young fellow recently returned from leave in Australia. Forest Officer Joe Havel had freshly collected specimens of Araucaria klinkii and A. cunninghamii for me; a bandicoot and a pale brown Melomys for Van. Asked if he could spend a few days with us on Mt. Wilhelm. Agreed, if he can get official permission. The experience of such a visit would greatly assist in rounding off his knowledge of the mountain flora and ecology for future use in the Forest Ranger's School.

Arrived at Mick Leahy's Zenag property a little before noon, where we stayed for an excellent roast duck lunch. Many people call at Zenag. Visitor's book has signatures from round the world, the most prized one being that of Prince Philip, with a page to itself. While we were there an old-time labor office man, Jerry Brown, called in with a visiting official from Canberra in his charge. Spirited discussion with Mick on the native labor situation; whole thing out of hand; UN interference; wishy-washy officials of the post war crop; contracts not enforceable under the regulations and smart natives taking advantage of this. Brown agreed to most of it, which in the presence of the Canberra official, took some courage. Mick, since the war, has done a good job of farm development; beef and dairy cattle, slaughterhouse, piggery, 6000 chickens, a duck pond, vegetable farm, etc. Three of 4 white men and 70-80 natives employed. Milk deliveries in Lae (about 50 miles) and Bulolo (about 20 miles). Shop in Lae selling fresh vegetables, eggs, poultry, and meat from his farm. Grows feed grain (corn and sorghum) on a big farm at Erap in the Markham Valley, about 70? miles from Zenag.

Next stop was at Gurakor. Found Mrs. Horrolt sick in bed from a relapse of Echo 6 or what you, and Horrolt stricken with the same thing and barely able to get around.

Our last call was at Lionel Baker's plantation. Lionel had 3 Pogonomys and several small Pipistrellus in pickle for Van.

Lae has cooled down noticeably since the onset of the SE and their wet season. Roadside vegetation washed clean of the gray dust of the coast and mountains of these parts. Gave the cook a spell and ate at the hotel, partly to see what other people looked like. Afterwards dropped in to see a basketball game at a hall owned by the hotel (Hotel Cecil, managed by Mrs. Dorothy Stewart, now owned by Morobe Hotels Ltd.). Hotel had a bar there. No admission charge. Very spirited game between Army (Volunteer Rifles, the only military force here) and Voco (Vacuum Oil employees). Sort of Rugby rules. Few restrictions, not many whistles, no dancing girls. Both sides weak on the bag. Scores 7 to 2.

Friday, May 29. Van packing specimens most of the day. Myself packing collecting supplies for transport to Goroka on our Land Rover Monday, if we can get away them. We will lay down a dump of about 2 months' collecting supplies at Goroka and leave other stuff to be forwarded by govt. charter flights to where we need them on the lower Highlands.

Lae

John Womersley and I went to Qantas and talked with Asst. Traffic Manager Geoff Filtness about our charter flights (the traffic manager himself away at Goroka to organize that end of the heavy air traffic of visitors to the annual Goroka Show, being held tomorrow and Sunday). Had very good news there. Payload from Goroka to Keglsugl and back to Goroka will be 2400 lbs. This eliminates anxiety about cramming things into two loads from Goroka and a land carry from Kundiawa (Chimbu) 2 carrier days from Keglsugl. If we can dribble out collections either through through the govt. post at Kundiawa or by a Catholic Mission which, piloted by Father "Joe" Wallachy, makes frequent trips to Keglsugl, it will be possible to fly out everything including personnel in one flight. The charter cost will be 40 pounds per flight, which certainly is not excessive.

We also made a call on Brian Sullivan, officer i/c air transport of government in this district. Yesterday or the day before he had a phone call from head/admin. in Port Moresby asking for an explanation of a complaint that certain cargo of the Archbold Expeditions had been mishandled or not picked up by an admin. charter flight. Obviously a mixup somewhere. We have no complaint. The only thing to go wrong here since our arrival was the non-delivery of our ocean freight from New York and the Admin. had no part of that. I suspect that Alan Willis, who was all het up about the bungling of our cargo, got talking about it over drinks at the Papua Club and a reaction thereto by John Gunther, Asst. Administrator.

There is talk in town about the annual? administration road convoy from Lae to Goroka scheduled to leave 8 am. Tuesday. Number of vehicles involved varies from 30 to 70, including many private cars and two big trucks carrying bulldozers. Convoy speed is to be an average 40 mph between rivers. An impossible rate of travel to maintain .

This evening the boys wanted to draw money to go to the pictures; 2 shillings per head. A special "Jesus" show put on by one of the missions, according to the cook. Ordinary junk shows cost 1/-. After looking at the prospects, the boys returned the money (I had made them a present of the admission fee).

Van has his mammal totals for Kaindi made up this evening: 27 spp. (22 Kaindi proper, 1 Wau, 4 Bulolo). From Kaindi: Pseudocheirus 3 spp., Antechinus, Phalanger 2 spp., Dactylonax, Dorcopsulus, Dendrolagus, Peroryctes, Pipistrellus (large), Miniopterus 2 spp., Rattus 2, Pogonomys, Anisomys, Melomys 2, Lorentzomys, Hyomys, Parahydromys. From Wau: Protemnodon? (partial skull). From Bulolo: Syconycteris, Melomys (different), Echymipera. Van has spared no effort and lost no opportunity to advance the collection. Number of specimens: Kaindi 117, Wau 2, Bulolo 5.

Results in herps were poor. 15 frogs of c. 5 spp., 4 specimens of skinks. One snake was seen at an altitude of somewhere about 7000 ft. on the Edie Creek-Watut Divide.

Saturday, May 30. Organization of the cargo completed, all but the weighing of the cook's gear and the "scaling" of the boy's swags. The useless cook's helper, Dani, was paid off. A fourth blanket was bought for the other 5 boys, and a pair of sandshoes each to protect their feet a little from the frosty grass and frozen ground of early mornings at high altitudes. We have been unable to get warm material for lap-laps, so will tear blankets in half for this purpose. As an instance of the disparity of prices asked here, BP's wanted 2 pounds a pair for sandshoes made in Australia, we bought quite a good-looking item at 9/- from one of the Chinese stores. The latter made by the Fung Keong Rubber Manufactory, Ltd., Hongkong.

Lae

In the evening Van and I drove out to Lionel Baker's Gabensis Plantation for a barbecue. Was much impressed by the beauty of the lush lowlands, the lower mountains, and the soft curves of the kunai hills after sunset. The grounds of the Baker's place are colorful with crotons and hibiscus and cropped green grass, well tended without being prissy. We ate under tree-ferns and a big Cordia tree half-covered in climbing aroids. A soft breeze came down from the hills; the Cordia dripped condensed dew at times. Guests besides us were John Womersley (Mary is down with mumps), the Ted Hentys, Arthur Abrahams, and Kitty Ginter, besides sundry small fry.

Sunday, May 31. After only an occasional night shower since our arrival, this morning turned wet, with practically constant light rain to between noon and 1 o'clock. Afternoon and early evening overcast but without rain.

This is the day of the annual show at Goroka. Six planes crammed with as many passengers as regulations allow (about 40, without baggage, on DC3s) took off from Lae this morning. Heard only a few come back. Fares for the one-day round trip were reduced for the occasion. Passengers clamoring for seats would have filled several more planes. All planes available were in use.

Van packing herps most of the day. Self attended to boy's swags and cooks gear (fining down the weight quite a bit), typing lists, and writing letters.

The Land Rover and trailer loaded late in the afternoon. We have just about a long ton of cargo including John and me and my two boys, Edewawa and Soni. The boys in good spirits, and excited about the mountain work ahead of them. The carrying capacity of the Land Rover, without trailer, is rated at 2240 lbs.

Monday, June 1. Left Lae in the Land Rover at 8 am: John Collins and I, and my boys Edewawa and Soni. Altimeter read 70 ft. at head of the airdrome, where actual altitude is perhaps 30 feet.

Details of the journey are recorded in small Notebook #1. About 24 miles along the road, having passed the first of the wartime Nadzab airstrips, we came to the beginning of the open grass country of the Markham Valley. Kangaroo grass on the level, very broad valley bottom; scattered Antidesma and Albizzia procera trees. At 9 o'clock, 30 miles out and 400 ft. above sea level, we crossed the Erap River on two steel bridges connected by a causeway. Shifting stream; gravel outwash from the Finisterre Mts. Dept. of Agriculture Lowlands Livestock Station and a sisal experimental area on far bank of river. Open kangaroo grass country which would be reckoned 2nd class grazing for cattle. At 9:30 (47 miles) we drove through several hundred yards of water running up to about 1 ft. deep across the road. Some miles of more thickly timbered grass country before this; mainly Albizzia procera (red with young seed pods), with Sarcocephalus cordatus on the less well drained ground and along small watercourses.

By 10:40 (62 miles, 800 ft.) we had crossed the Leron River, a difficult ford and the principal obstacle on the road. The Leron a fast, braided stream about ¼ mile wide; 3 channels; water turbid with gray silt from the unstable Finisterres. For the crossing of the last, and main channel, John took the fan-belt off. We went downstream with the current, but the water washed over the topside mudguard, we had an inch or more in the cab, and for a few yards we half floated with the stream. No faltering of the motor (the spark plugs, etc. had been waterproofed). Water came well up on the trailer, but it was carrying fuel drums and metal boxes which could not be damaged.

Lae-Goroka

Wide stretches of grass beyond the Leron. At 64 miles stopped to photograph a section in which thousands of low cycads grew in the grass (Cycas media?). Looks like the species of the Port Moresby savannas, and like one which appears less commonly on the grass patches near Lae, in the Bulolo and Snake River valleys, and I think also at Wau.

Six miles beyond the Leron we had some trouble in crossing a small, clear river on which a steel bridge was left useless by the south bank being washed away. The ford was gravelly and looked good, and the two boys were sent wading across to test it for depth and firmness. But on the far side we were slowed by a slight lip under the water, the rear wheels began to dig in and the engine stalled. By quick rocking on the gears we got out, but it was touch and go. The only real trouble we had on the trip.

Evidences of only very scattered native population were seen in the valley until we reached the Maniang River at 74 miles. The river, now bridged, has a soft shaly bottom and was the worst ford on the road. A fair sized new village on the south bank. Conical grass roods reminiscent of East Africa. Bananas the staple food and quantities of sweet potatoes also grown. The Works Department maintained the road, and occasionally used a grader on it, to this point. Beyond on the Markham lowlands maintenance was by village people, who turned out Mondays to do necessary work.

At Dabu village (78 miles) we saw the first women in grass skirts and naked above the waist. We were getting away from the "civilization" of the coast.

At 12:30 (94 miles, 1600 ft.) the level grassy valley of the Markham had narrowed to perhaps 2 miles and the road headed for the forested foothills of the Finisterres where the Umi tributary came down from a very narrow, almost gorgy valley. Skirting the steep slopes in a narrow cutting which heavy vehicles would not be able to get through, we crossed a branch of the Umi on a swing bridge 20-30 yards long (bridge hung on 2 x 2 inch steel cables and decked with Marsden matting). A big carved wooden figure, obviously female, stood at the near end of the bridge, and a male figure at the far end. In another mile we crossed the main Umi on another swing bridge. This one fifty yards long, 20-30 feet above the fast gray water in the middle, bouncy to walk on, and dipped to one side. I walked across to get photos of the crossing while John drove. The driving not difficult, he said.

On the far side of the Umi we stopped at a pleasant shady place to eat lunch (cold roast chicken and billy tea). A road camp of two old but still good thatched buildings here is sometimes used as a resthouse by travelers. Ten cases of ancient-looking gelignite in one building, a couple of wheelbarrows andsome picks and shovels. In forest here, but there were no big trees and the forest looked young. It would be worth 3-4 days of our time. The grass hut without gelignite would provide good boy's quarters and a veranda for us to work under, and there was good ground for a tent and fly.

Moved on from the Umi at 1:35 and soon were out in the main, grassy valley of the Markham again (heavy vehicles ford the Umi some distance below the swing bridge). Rather numerous villages, marked from a distance by groves of tall coconut palms.

At 101 miles (1500 ft.) we stopped in Maratumi village to make pictures and try to buy some betelnut for our boy's use on Mt. Wilhelm. Could get only one bunch (plenty there, but growing at some distance from the village).

Lae-Goroka

At 2:20 (108 miles, 1500 ft.), having forded the main Markham (wide gravelly bed, little water) we came to "Water Rice", a small, clear, deeply entrenched permanent stream at the foot of the mountains on the south side of the valley. The Gusep road goes on up the valley and across the imperceptible grassy divide into the upper Ramu valley from here. A government resthouse here; several other thatched houses which would seem to have been occupied by Europeans at some time, and a small trade store in charge of a native. A dump of 50-gal. aviation fuel drums; they are brought from a wartime dump at Gusep, thousands being used by govt. for road culverts, etc. Private contractors get 15/- per drum for transport Gusep to Goroka. Bought here for a few shillings enough betelnut to last our boys for two months -- if it will keep that long.

Leaving Water Rice at 3 o'clock we crossed less than a mile of level ground and in 15 minutes (113 miles) started the climb to Kassam Pass. Slopes mostly very steep. Forest comes low in the narrow valley (later gorge) we followed. Scattered Araucaria klinkii, the first appearing in the gully at 2400 ft. Slopes a little less steep after 3350 ft. Came out on a kunai spur at 3400 ft. and there started a big climb. At 3:30 (116 miles, 3800 ft.) stopped to photograph the Markham-Ramu Divide - in plain view below but perhaps too much haze for a usable picture. Two grass houses here. Castanopsis prominent in forest (other trees not recognizable). An untimed stop of 10-15 minutes.

At 3:55 (118 miles, 4750 ft.) a road camp of three grass houses; 2 boy's houses in good repair, a former European-occupied small house which could be made habitable with a little work. Slopes generally steep, but a short term camp could be made here.

Top of the Kassam reached at 4:10 (118 miles, 4900 feet). Good tall forest with Castanopsis and oaks prominent. Down the inland slope about a mile clear creek offers a good camp spot at 4500 ft. All tall forest back along the road, edge of the great grasslands of the highlands just ahead.

At 4:20 (120 miles, 4500 ft.) reached Kassam Base Camp of Public Works Dept. Extensive thatched camp and storage sheds. the house of a police sergeant (native), and a good, small European-type house said to be occupied only occasionally these days. Met Eddie Collins, brother of John, here, loading drums on a truck for Goroka. The place would make a well placed, very comfortable camp for us. Solid forest on the Markham Divide side of the clear-running creek, hilly grassland on the inland side.

Continued on out over the grassy highlands after a 20-minute stop. Passed through Arona livestock station an 5:10 (129 miles, 4350 feet). Road lined with red cordylines, Klondyke Cosmos, etc. Much lateritic soil beyond Arona. Climbing a forested divide between Arona and Aiyura, we ran the gas tank dry and refuelled from one of the drums we carried at 5600 ft. Most of the forest primary. Castanopsis and other logs, in short lengths, stacked along roadside (cut months ago for the Summer Linguistics Institute at Aiyura, and some beginning to decay). Top of divide at 5800 ft.; Nothofagus recognized in the tall forest; 6 o'clock.

Stopped at Govt. Experiment Station 5 minutes past the summit and only a little below it. Called on A.J. (aub) Schindler, officer in charge. Big genial man, pleasant wife, several small children, and numerous large, friendly dogs. A quonset hut, presently occupied by an entomologist, would probably be available for our use in September. Schindler mentioned good forest on the Karanka Road, which branches from the main road back towards Arona. An area of 4500 acres Nothofagus forest about 2 hours walk from Aiyura.

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Night fell before we left the Schindlers. At 7 o'clock we reached the Kainantu Hotel and put up for the night. Pleasant, small, new hotel on the bull-dozed top of a grassy hill (all hills grassy hereabouts); owned by Highlands Hotels Ltd. and run by a Dutch couple named Hoogervorst. Altitude 5260 feet, 152 miles from Lae. Slept under three thick blankets, and needed them.

Tuesday, June 2. After a tasty and well served breakfast at the hotel, we called at the government offices (Kainantu Sub-District Headquarters). ADO A. (Gus) Bottrill away in Lae. PO Jack Erskine, in temporary charge, had been in the area only 3 weeks and knew nothing about it useful to us. Spoke briefly with, but did not know who he was until later, Dr. Zigas, one of the original researchers on Kuru Disease (so-called Laughing-death) at Okapa, a patrol post about 30 miles to the south of Kainantu.

Left Kainantu at 8:25 with a moustached young man named Don Cross, an acquaintance of John Collines, as passenger. Cross showed signs of a heavy night with the young men of the post; talked incessantly for an hour, then subsided and dozed. He knew the country well, however. Pointed out a conspicuous hill a few minutes out of Kainantu called Moneyfinke (?) where plate gold had been mined, and a gully from the hill which had yielded kooked gold in valuable specimen form.

Some relic forest, mainly Castanopsis and an oak at 5:50, 160 miles from Lae. At 9:05 crossed the Ramu-Purari Divide at Kompri Hill, 6200 ft. Divide capped with good Castanopsis, oak, etc. forest. The highest point on the Lae-Goroka Road.

Passed Henganofi patrol post at 4900 ft. in a pleasant little grassy valley. Climbed a grass divide from there and at 10:50, 5200 ft., 192 miles, entered the Asaro Valley. Goroka is situated in this valley, which iswide, grassy, and not so very hilly as the other highlands valleys we have passed through. Black Angus cattle grazing in a fenced property of one of the Leahys where we dropped down into valley. A stiff climb up the Bene-Bena Divide at 5500 ft., 205 miles. Reached Goroka at 11:50. 5400 ft., 214 miles from Lae.

Had lunch at Eddie Collin's place about a mile NW of the town. Later called on District Commissioner Bill Seale; Government Stores (Dick Winter and -- Primrose) to arrange for storage of our gear; Qantas office to check on our air charters, and Buntings to check on our foodstuffs order. Ken James, manager of Buntings, kindly invited Van and I to use his guest house and take our meals with him. The guesthouse a comfortable 2-roomed place with bathroom and small kitchen, running hot and cold water, and electric light. We found the Goroka Hotel pretty poor on our visit of two months ago.

The best forest on the Goroka side of Aiyura was on the Ramu-Purari Divide. This would not warrant a camp of more than two or three days. Practically no timber is left between the Ramu-Purari Divide and Goroka. On the Goroka side of Henganofi there is a relic patch of Araucaria cunninghamii coming down to the road in a small valley. A government resthouse there. A possible camp site for a few days.

Wednesday, June 3. Light rain through most of last night. Day generally overcast. This condition said to be unusual for this time of year.

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Van and the boys (Kim, Liklik and Hetanin) arrived on the "Milk-run DC3" about 8:45 from Lae. The rest of the working day -- ending at 4 pm at government establishments and 4:30 in commercial places -- spent in organizing our collecting supplies in Keglsugl and to-be-left-in Goroka lots and in repacking groceries from Buntings. Still some work to do on this.

Big social does this evening. As Ken's guests we went to a cocktail party at the house of Commonwealth Bank manager Wilson's house. The party in honor of the visiting parents of young Wilson. Very charming people. Guests must have numbered at least 20 in a small house. One of them was Matron Bedelia Mulchay, who as Sister in Charge of Samarai Hospital in 1953, nursed Geoff Tate in his very critical illness. Dinner at Ken's house with DC Bill Searle and his wife, Heather, followed. A flock of other people came in for coffee. Conversation gay, a bit flippant, but sound and with all round keen interest and rather surprising understanding of world events. No anti-American expressions of opinion, but an apparent underlying dissatisfaction with U.S. foreign and economic policies. A leader in this was Ed Wright of the stock broker firm of Ian Potter & Co., Melbourne, who is a house guest of Ken James.

Seale would like to visit us on Mt. Wilhelm about the beginning of July. I should welcome him there. He proposes to fly in to Keglsugl with a staff of one policeman and be with us for about three days. Bill and his wife are greatly interested in plants and in growing things, especially orchids, roses, and rhododendrons. He has initiated a reafforestation program in the Eastern Highlands District. Hopes to have a forest officer and at least two forest rangers stationed in his district. We have a mutual respect for the ability and competence of Joe Havel. Seale feels that Bill Suttee, newly appointed Director of Forests after the death of McAdam, is a very good man.

Thursday, June 4. Finished the packing job about 11 am., all but a few extra items of foodstuffs which I will buy tomorrow. Total weight to be flown in to Keglsugl will be about 4300 lbs.

Took time off after lunch to drive out to young Danny Leahy's coffee plantation, on the Bena Bena River near its junction with the Asaro and about 11 miles out of town. 42 acres planted with coffee, the oldest 4½ years. Very good alluvial soil and a fine lot of trees mostly of the C. arabica typica strain (some Bourbon). This is the first good crop; 9 tons harvested to date and expectation of 12-15 tons this year (4 tons last year). The Australian buyers have guaranteed 4/- a pound f.a.q. for this year's crop.

Hoped to finish my paper work this afternoon, but there has been a power failure in town. The afternoon was rainy and dark, and little work could be done.

Friday, June 5. Valley filled with cloud this morning after the rain and the first plane could not land until about 9 o'clock. A little rain this afternoon but the weather in general looks good.

Weighed our cargo on the Qantas scales this afternoon and stacked it in first and second loads. First load 2290 lbs. including personnel, second load 2017 lbs. The pilot, Bob Crabb, agress to my going in on the second load. Our 7 x 5 gal. drums of kerosene are on the second and a pilot has the option as to whether he carries passengers and inflammable cargo at the same time. So much of the handling of cargo is left to the natives, without proper supervision, that I don't want to risk any of our stuff being left behind. We left our cargo in two neat stacks in the Qantas shed about 4 pm. By 4:30, when I returned to talk with

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the pilot, the first load was about three-parts covered with bags of mail.

Met this afternoon George Greathead, an early District Commissioner of the Eastern Highlands, who resigned from the government service some years ago to plant coffee and do general farming in the Goroka area. Came to New Guinea as a patrol officer in 1933.

Take-off time for the first flight in the morning is 7 o'clock, weather permitting. Opinion is that the take-off will be later, especially if rain falls tonight. The valley is often fogged in after rain, as this morning. After 10 am. high wind can be expected on Keglsugl strip.

Keglsugl

Saturday, June 6. A big day in importance for our expedition. The first charter flight took the air from Goroka at 7:12. The second flight left at 8:58 and landed on Keglsugl strip at 9:22 (flight time, engines on to engines off, reckoned at 28 minutes in, about 25 minutes out. The morning broke completely overcast and with a white fog cloud in the lower part of the Asaro Valley which hung there until after the first flight took off then closed in over the bottom end of the strip. The valley cleared before the Otter returned from Keglsugl, but the day remained completely overcast. Conditions were ideal for our air transport. A sunny day would have meant clouds in the valleys in the afternoon and probable rain. The flights (Captain Ross Crabb, co-pilot Jim Taylor) were without incident. Neither pilot had landed at Keglsugl before. To test take-off capacity with a load on the Otter, they did two experimental take-off with about 1500 pounds of our cargo on board. As a result, we will be limited to 1500-1600 payload on our evacuation from here, which will mean two charter flights.

The store shed which Acting A.D.O. Dwyer of Kundiawa promised to have built for us was not built. As far as I can make out without further inquiry, Dwyer sent word for the house to be built, but the matter was referred to the priest at nearby Dengalagu Mission. Whether the priest was for or against it (the talk is that the approval of the bishop was necessary), the job was not done. The mission has a good small store house about 12 feet square on the edge of the strip, and we forthwith put our cargo into it. Through Luluai Kindua of Waimambuno, who was on the strip with a crowd of other men, women and children (many handshakes and smiles and "good mornings"), work was started on a 12 x 15 house for us as soon as I arrived. Some of the workers a picturesque sight with goldlip pearlshell neck and face ornaments. The young men inclined to loaf. Diverse bits of European clothing worn by these people, the most unusual being what looked open-knitted skullcaps made of raw wool.

For some reason, Luluai Kindua left for Kundiawa (a two-day journey) an hour or so after I arrived. As so many men worked more or less on the house building job, we felt it wise to delay payment until the return of the Luluai (a luluai is a chief appointed by the government, under him are several tultuls or headmen). There was not general agreement on this, although some of the older men (who did most of the work) were for it.

As our house could not be other than a hurried job, and doubtfully weather proof for long, I sent a note to the priest at the mission (said to be 1500-1800 ft. below us) asking permission to use his shed. A cordial assent has arrived. The father is Dutch (Beutener ?) and a new man at Dengalagu. This evening the boys are in the new house and Van, John and I are in a tent. Light rain began about 5 o'clock and now at 5:50 the temperature is a chilly 65 F.

Van and John showed symptoms of the pidemic flu or Echo 6 or whatever it is yesterday. An antihistamine seems to have arrested Van's, but John has been quite ill this afternoon with headache, diarrhoea, etc. The epidemic is affecting many people in Goroka.

With the onset of the rain, the crowd which has been around us all day disappeared. A pleasant people, though not overly clean for the most part. The women brought us food for payment in money. Tonight we have plenty of English potatoes, sweet potatoes, cabbage, shallots, leeks, tomatoes, green beans and broad beans to last us until our departure up the mountain Monday morning.

Keglsugl

The local price is a penny a pound for native food, 2d. for European-type vegetables. Great quantities of fine rhubarb, of which we can use but little, were brought in and was not bought by us were thrown away by the vendors.

The garden lands extend two to three hundred feet in altitude above the air strip (officially 8390 ft.) and are the highest cultivation I know of in New Guinea. Where the ground is black it is good for crops, I was told by a pidgin-speaking local.

Sunday, June 7. Light rain fell at times last night. This morning clear, and 7:10 the sun rose over a mountain spur to the east. Sunny morning; afternoon overcast, with a little very light rain.

With Van's help, I organized the cargo for the carry up the mountain tomorrow. Have 53 loads, including two or three light ones; but usually has to take more carriers than one really needs (when plenty of carriers are available, as should be the case here).

John has not left his bed all day; the diarrhoea has gone and symptoms now are of an ordinary cold. He has eaten some breakfast and lunch.

Sunday mass can not be taken too seriously around here, for, until the rain began after lunch we had a crowd around us, some of them trying to sell foodstuffs of which we not wish to buy more until we are on the mountain. We are told that women will carry food to the mountain camps on Thursdays and Mondays. As these notes are being typed, about a dozen whispering small fry are gazing in the door of the store shed in which I am sitting on a flour tin, the typewriter on a field box.

Monday, June 8. Much confusion in getting away this morning. Had more carriers offering than were needed; the biggest and the strongest tried to get away with the best-looking loads; John inexperienced at this sort of thing; the government tultuls failed to appear. But for the authority of a boy of Mick Leahy's, at home for a holiday at his village nearby, the confusion would have been much worse. As the carriers were tying their loads, Father Buetner of Dengalagu and another Dutch priest came up to the airstrip to meet a mission plane expected in from Madang. Finally, we got away at 8 o'clock. With a guide named Petrus I kept the lead for a time but soon gave that up to adopt a more easy pace.

The altimeter read 8,600 ft. at Keglsugl at 8 o'clock. At 8800 ft. we came to the last garden. Just above it a planted grove of big-seeded Pandanus, called Karuka here. At 9150 feet reached Pengagl stream, a big stream fed by the lakes on Mt. Wilhelm. The weather overcast and visibility poor in the forest, but it seemed to be a mixed forest with beeches prominent, also Podocarpus papuanus. An old sawpit and a native hut in a small clearing on the near bank. This would be a good camp site for us. A very interesting-looking primary forest easy to get about in, but the creek a mass of pale granitic boulders as if from a recent rockslide. The present trail up the mountain follows the creek, with good travel. I diverted along the old trail to inspect the camp site used by Tom Gilliard some years ago for collecting birds. The old trail partly overgrown, often boggy, and hard travel. Reached Gilliard's camp at 9750 ft. Situated on a shelf big enough for us, but a damp, unpleasant site in low forest cluttered with scrambling

bamboo and a big Coprosma on the edges. A tight, pandan-thatched house there and an open shed the property of one Kwoima, who also owns the forests thereabouts and the birds-of-paradise in it. Gilliard probably camped there chiefly to collect birds-of-paradise.

Came back on the creek at 10 o'clock (9850 ft.), just above the rock slide. Found Kim the cook sitting there, sick. He had been affected by the wog that is going through New Guinea the night before, but said nothing about it. A long steep climb began there. The edge of the alpine grassland in a glacial valley was reached at 10,800 feet. Forest there mainly of Podocarpus compactus, a Papuacedrus also there. Clearia thickets flowering on edge of forests. Two species of tree-ferns (Cyathea) abundant on the grassland. The bottom of the narrow valley rough and poorly drained. Trail followed the lower left-hand slopes; very wet and sticks laid on it in places. By that time most of the carriers were ahead of me and the trail, was badly cut up by the traffic.

About half an hour up the valley I found Hetanin, one of Van's boys, lying alone in the grass. He was hungry and buggared up, he said. I then discovered that contrary to strict orders last night and a before-daylight call this morning, only two of the boys had eaten breakfast. Gave Hetanin some chocolate and kept him ahead of me on the trail. Reached the top of a conspicuous cascade at 11:40 (11,350 ft.). Continued on in misty rain and arrived at the Piunde-Aune top camp at 1:15. Altitude 11,600 ft.

The camp takes its name from two small lakes, one several hundred feet above the other, both of which are called Piunde-Aunde by the local natives. The camp overlooks the first lake from an elevation of about 40 feet. John had had a tent rigged to shelter the cargo from the rain. Two small huts of grass and bark were belching smoke, but most of the carriers did not bother to take shelter. Soon the rain cleared for a while, cargo was lined up and the carriers paid, garden produce brought from a group of women who had accompanied the carriers, and most of the people departed for their villages down the mountain. About 20 locals who remained to help us rig camp retired to sleep in three grass huts across the valley. We put our boys into the lowest of the two huts at the camp site, and ourselves crawled into the other. It was about 8 feet by ten, and five feet high at the ridge. Leaks developed with heavy rain late in the day and we stretched a fly over it. The ground was hard, drafts came through the grass walls, and I for one slept little.

Tuesday, June 9. The day broke clear and for maybe an hour snow glistened on the peaks visible about 2000 feet above us (the main peaks are hidden from here). A truly miserable day followed, with intermittent cold rain until after nightfall. No sun at all after early morning. Our cook quite ill, and three more of our five permanent boys flat on their backs. Our local helpers needed much bossing from John to bring in timber and grass and build us a more habitable hut. We can stand up in this hut, is measures 11 x 13. We have our beds on the ground, well padded underneath with (moist) grass, and shelves for stores and personal belongings.

At the warmest part of the day, temperature outside our work tent (also rigged today) was 50 F. It was down to 42 at 5 pm.

Wrote to Archbold, Van Gelder and Womersley, informing them of our arrival on the mountain. Said letters will go down to Dengalagu Mission by messenger in the morning.

Piunde-Aunde

Wednesday, June 10. A little cloud in early morning and a temperature of 35 F and a light frost on the grass. A beautiful sunny day followed. Four of our five boys unfit for work. Some of the locals unwell too. I was distinctly below par yesterday and attributed it to delayed effects of altitude. No improvement today; I have a temperature of 101, and now think all the sickness in camp is from the epidemic wog.

A kitchen, latrines for ourselves and boys, a work bench for me, and various smaller jobs done today. Thought I would start collecting but did not feel equal to it. Four Rattus niobe in a few traps set last night near camp. The locals have brought in a number of these common rats caught in snares. One Eudromicia caught by hand in an old bird's nest in the forest.

John spent a good part of the day wandering in the neighborhood. Went up to the second lake in the morning. In the afternoon he climbed the few hundred feet to the Ramu Divide; reported the Ramu slopes forested almost to the top.

Thursday, June 11. A gray dawn, clear overhead but with Wilhelm's peaks under mist; tops of high mountains to east also under mist clouds. An unpleasant, cold, windy, almost sunless day. No rain to 5 pm.

Still feeling unwell (temp. 102 last night) but started collecting on the longgrass slopes and in a small relic patch of subalpine forest between camp and the lake. Two (Agrostis and Hierochloe?) of several grasses collected, also the dwarf Aulacolepsis (2-4 cm) of the short-grass community of the alpine grassland. Common shrub associates of the long grasses are Styphelia, Diplycosia, a big Haloragis, and on wetter ground, a widespread Kelleria (K. papuana). Hypericum macgregori also there. Only forest edge shrubs and small trees collected: 2 Olearia spp., 2 Vaccinium, a pretty Rhododendron with nodding dark red flowers, and a rather big-leaved Coprosma. A Coprosma with smaller leaves is abundant on the grasslands. In all, 24 species collected.

A great pile of food brought up the mountain by the Chimbu women this morning. We asked that food be brought for us to buy on Mondays and Thursdays. If it will keep, we should now have enough on hand to last the rest of our stay at Piunde-Aunde.

Van, contrary to my ideas, has been buying numerous common Rattus niobe from natives camped here. Price began at sixpence, and has dropped to threepence. But mixed in with the Rattus this morning were two terrestrial Pogonomelomys. In steel traps set last night by Wak was a fine big dark gray Hyomys; another was brought in by a visiting native. Caught in forest acrosss the valley was a blackish Pseudocheirus, and brought up from somewhere lower down by a man accompanying the food transport were two Peroryctes ornatus. A very good day for Van, but both his boys are off duty. John is helping with the skinning.

In late afternoon John climbed to a rocky crest in the direction of the main peaks on which a bomber was wrecked during the war. Wreck at 13,400 feet. Evidence of an explosion. Story of the wreck we have from the natives is that the plane hit the mountain and exploded about 10 o'clock one night. Next morning the present luluai, Kindua, led a party up the mountain and brought the bodies (or remains) down to Keglsugl airstrip where they were buried. Later the bodies were exhumed (American bodies?) and taken to Kundiawa.

Piunde-Aunde

Friday, June 12. High thin overcast at dawn; day mostly clear and sunny. The second day of good weather since we have been here. Temperature at 6:45 am. 38 F. No rain except a misty drizzle about dark last night.

Collected around the S. side of the valley to the west end of the lake; mostly shrubs and herbs of the forest edges (Hebe albiflora, Acaena, Epilobium 2, Cynoglossum? with white flowers, a common shrubby Dimorphantera with red flowers, a common small tree of the Compositae which has the habit of Olearia but is rayless and could be Senecio, etc.). Several ferns including 2 Grammitis and 1 Hymenolepis collected.

My Edewawa ill today, the cook still off duty, and the two mammal boys worked only part time.

John in the afternoon made an excursion to the second lake (L. Piunde of some maps) the altitude of which he made 12,250 ft. Brought back several plants new to the collection: a purple-flowered Eurya, Detzneria, a Quintinia with much reduced inflorescence, and a curious pale yellow orchid growing on a grassland rock.

Saturday, June 13. Clear morning with some frost on the grass, but i high thin overcast. Minimum temperature 3.5 C. Started maximum and minimum recordings and relative humidity readings in a grass shed built for the purpose yesterday. Weather generally cloudy and raw after about 9 am.; light rain on and off from 11:45; heavy rain for a while about 4 pm.; valley filled with mist after that (same last evening).

Boys very sluggish this morning. Too lazy or disinterested to cook, and began work without breakfast. Have made it John's responsibility to see that the boys have proper meals and take turns at the cooking. In this weather they will crack up unless they eat well. Several of them have bad coughs from the epidemic sickness which went through camp.

Botanized up the north slopes to 12,100 feeet, paying attention to the forest trees, of which Podocarpus compactus and P. brassii were collected, also a common canopy tree of the Lauraceae, to red Rhododendrons of the borders, and two species of Eurya. In a little grassy valley I found two examples of the smallest of the open ground tree-ferns seen inthis locality, and collected it. The species looks like Cyathea gleichenioides of the Snow Mountains. Much of the grassland of this upper part of the mountain is wet with sepage water. The forest is confined to the drier ground. Stubs of trees out on the grasslands, and isolated Podocarpus compactus trees, indicate that formerly the forests were more extensive.

John visited the second lake again this afternoon and shot a Salvadorini duck, which is now in the hands of the cook.

Van still struggling to get abreast of preparation of mammals on hand. Worked at it for several hours last night. He is getting less help from his boys than I am from mine.

Sunday, June 14. A clear dawn promised a fine day but by 8:30 clouds started coming over from the SE and 10:30 drizzling rain began. Thereafter mist, drizzle, and occasional short bursts of sun. The high ridges shutting in our valley hidden much of the day.

Piunde-Aunde

Botanized across the valley at about camp level, paying particular attention to the forest patches. Forest there consists of a canopy layer 30-40 ft. tall in which a Pittosporum (P. pullifolium?) is very plentiful. No emergent trees. A Drimys frequent in woody undergrowth, also a Coprosma. Two spp. of treefern (Cyathea) found and collected in the deep forest; both stout, and one producing fronds from the apex of the stem as do the grassland tree-ferns. Two tree species - Evodia? and an ericoid Rapanea-- added to the collection, and good fruiting material of Podocarpus brassii (discovered by me on Mt. Albert Edward in 1933). Trigonotis abata climbs commonly on the mossy bases of trees; a very prickly narrow-leaved raspberry occurs on the ground.

Van has caught up with bought and trapped mammals. Has 48 traps set at the lake edge and along the outlet stream tonight.

Weather notwithstanding, Van and John went mountain climbing after lunch and reached an altitude of 13,500 feet along the trail towards the summit. They brought back several interesting plants, including Papuapteris, Detzneria, and a velvety brown Andrea ? cushioned on a stone. With these collections, and some of my today's gathering still unprepared owing to shortage of driers, I have 108 numbers for 4 days' collecting. Things are drying slowly. The ground was wet when we rigged camp, and moisture keeps rising through the grass with which the ground in the botany tent is covered.

Monday, June 15. A very high thin overcast at dawn. Clouded over before mid-morning. In afternoon the cloud drift changed from SE to about NW, bringing sunny weather and that peculiar blackness of landscape characteristic of New Guinea high mountains. Peaks clear until nearly dark, when patches of gray mist floated over them from the NW. Clear at 8 pm.

My boy Soni and the other Finschhafen sick today. They have colds, but their trouble is mainly lack of guts. The latest development in my battle to maintain some morale in the boys is that eating potatoes, sweet potatoes, and presumably the other fresh foods of which we have abundance makes them sick. Therefore they are subsisting on the one-meal issue of rice they get per day. Have instructed John to personally supervise each meal until the boys get on their feet. Their miserable state is not entirely their fault. For several days I have asked John to have more grass put on their draughty hut. It took a showdown this morning to get action. The boys themselves could easily have done what was necessary to their hut in half an hour. But their courage has gone, and they have to be bossed and nursed.

Having only one boy, I decided to botanize down the valley, where the weather was likely to be sunnier than up the mountain. Got down to the 11,100 ft. level and started to botanize when I discovered I had lost my spectacles, carried in a shirt pocket. Retraced my steps, searching every foot of the track, and found the lost specs in the door of my work tent. That lost me a good part of the morning. Went down to 11,100 ft. again, but I did not have enough of the morning left for thorough botanizing. Species included two of Gleichenia from the grasslands, a common Plagiogyria from grassy forest edges, a gregarious Blechnum (B. archboldii?) from forest edges, and a small Humata from a grassland tree-fern trunk. Also from the grasslands 2 Gentiana spp., and common daisy-like Keysseria, and a rubiaceous mat plant which I do not know. A new tree for the collection was a Symplocos from the forest edges. Am running a night shift with the dryer to get abreast of collecting.

Piunde-Aunde

Every day John has been doing preliminaries for an ascent of the main peak. This afternoon, with two Chimbus, he climbed to the third lake of the Piunde-Aunde valley at 13,100 feet. Reports the lake a pond about 60 x 80 yards, the water clear and about 8 feet deep; edges swamps. He brought back a bag of plants from low tree growths and grasslands about the lake. Included were Podocarpus compactus, a small-leaved Drimys, and Eurya brassii?

Tuesday, June 16. Blowy light rain began about 10:30 last night and continued on and off for at least 2 hours. Rain from down the valley. This morning as yesterday, followed by a clear afternoon. Ramu-Markham Valley full of cloud all day, and at 5:30 pm. spilling over the mountains into the head of the Chimbu.

My night watch on the plant dryer kept me out of bed until almost one this AM. Got a chill, and consequently worked close to camp today. Morning mostly bleak and sunless. Collected a few grasses and the common buttercup of wet ground. Rest of day spent on dry material and preparing the nice lot of plants which John brought from the 3rd lake yesterday.

Natives from down below brought a couple of the blackish Pseudocheirus, two ornate bandicoots, and a Melomys presumably from near Keglsugl. My guide of a week ago (Petrus) and a couple of young boys got food from our pile and are camped tonight at the rock shelter at the lower end of the Piunde-Aunde Valley. They are hunting for Van.

John guessed right on the weather being as yesterday's and at 8:45 set out for the summit of Wilhelm with Wak and two other Chimbus. One of the Chimbus was back in camp within an hour. The other boys accompanied John to the top; the party returning at 4:45 pm. The altimeter read 11,900 ft. at camp, 14,850 ft. at the summit. Pullen & Hoogland in 1956 also made the summit about the same (15,000 ft.). The height of the mountain always has been in doubt, and probably there has been a little stretching. The most recent maps we have give the height at 15,400 ft.

Wednesday, June 17. Morning almost completely overcast. Some hot sun for about 2 hours in mid afternoon. Clouds from about east, blotting out the mountain most of the day. No rain.

Both of my boys sick with colds today, so Van lent me Liklik for field work in the morning. Went up to the second lake, called Piunde in some reports, at 3700 m. (12,200 ft.) and about 400 feet above camp. The lake very deep, and longer and narrower than the one on which we are camped. Collected Callitriche in the western shallows, and saw submerged Scirpus fluitans in other edges. Got a good bag of plants new to the collection, some from the grasslands, some from the patches of subalpine forest along the south and west shores. The south slopes very steep indeed in places and barely providing foothold. A plunge into the lake would have been very cold. Logs and sticks laid along the trail in places indicate that this was formerly the trail to the summit. The trail is no longer used, and the going is very hard, especially in the forest patches. Principal forest elements are Podocarpus compactus up to 30-40 ft. high, a Rapaena with pale small leaves (collected), Quintimia with abbreviated recemes, Myrtus? Olearia 29808 is abundant on the forest edges and extends in a scattered tall-shrub (8-12 ft.) stand for perhaps 200-300 feet up the slopes beyond the limits of the forest patches. Yellow-flowered Hypericum macgregori is very abundant in a belt which includes the Olearia

and extends several hundred feet still further up the slopes. Many of the Olearias have been dead for some years and all that remains of them are the white-bleached main stems and branches.

The mornings are almost hopeless for photography. Have been able to make pictures of very few of the principal plants.

John, from route notes and fresh collections of yesterday's climb, is putting together an account of his visit to the summit.

Thursday, June 18. Max. 13, min. 3.5 C. A light frost followed by an absolutely cloudless day; gusty breeze down valley from before dawn to about dark. No clouds to indicate wind direction away from the mountain, except the rather general filling of the Ramu Valley after about midday.

Van and John, with three Chimbu guides, went to the top of Mt. Wilhelm. They could not have had a better day had they waited a year. Van left camp at 7:15, John about ½ hour later; the summit of the main peak was reached at 12:10. They got back to camp at 5:50 pm. A long day, and both had had about enough. The aneroid read 12,050 ft. when John left camp; top of the main peak was 14,950 ft. John also climbed the #2 peak (in 10 minutes from the main peak) and made it 14,900 ft. Van has copious notes on the climb, and a record of papers left in containers of various kinds by previous climbers of the main peak; John has a record of papers found on the 2nd peak. One of the guides fished out a sheaf of papers from some second hiding place on the main peak, and, unfortunately, these were brought back to camp by Van (for what it is worth, the finder of the papers, Petrus, promises to return the papers on his next trip up the mountain). A number of color photos made by Van (stereo camera) and John (with my Contax).

Spent the morning working on collections on hand. Collected near camp in the afternoon, the bag including a Myrtus? plentiful as a tree in the forests hereabouts, a fifth species of Olearia, and a small-tree Sericolea which occurs only occasionally in the forests.

Among 5 specimens of rats I bought from the natives was a somewhat molelike small dary mousey-grey thing which Van thinks is either Microhydromys or Parahydromys. Paid the boy 2/- for it and asked for more.

Friday, June 19. The day began as yesterday. But the breeze soon changed to up valley and heavy mist clouds lay on the upper part of the mountain most of the afternoon. At 5:45 pm. the mountain is hidden, our valley is mainly filled, and the Chimbu Valley and mountain to the east are misted in.

The coldest morning we have had here (Max. 15, min. 3 C.) and a heavy frost on the grass. As I stood in the rays of the rising sun, I watched an elderly Chimbu emerge from the visitor's grass hut, clad only in his sporran of netted string hanging down the front. Picking his way gingerly ofer the frosty grass, he snapped a twig from a Styphelia bush, stuck it in the back of his belt, and was dressed for the day.

Spent all morning preparing 28 numbers of plants brought from 14,700 ft. on the mountain yesterday. Mostly dwarf herbs of mat and cushion habit which took a lot of tedious picking apart. Collected near camp in the afternoon and in 1½ hours got 13 numbers new to the collection. Included were the grassland

tree-fern Cyathea aff. bakeri and another Cyathea from the forest edge, a scrambling Cerastium which might be another growth form of a tiny cushion plant collected by Van near the mountain top yesterday, and a fine Didiscus from the long-grass community of the alpine grassland.

The cyatheas collected this afternoon make 6 species for the camp so far. C.bakeri (?) and another grassland species, like C. gleichenioides of the Snow Mts., range highest of the grassland treeferns on this mountain and are fairly common at the second lake. A Schefflera and a Pittosporum, both common at camp level and some distance below, also occurred in the forest patches at the second lake. Both are of shrub habit but reach a height of fully 30 and even 40 feet in the subalpine forest.

Saturday, June 20. Max. 16.5, min 3.5 C; light frost. Day broke clear, with high cirrus clouds. Clouds racing over from about E closed the sun from our valley by 8 am. From about 11 on, mist driving up from the SE filled the valley. An occasional sprinkle of rain. Lousy weather.

Botanized on the slopes across the valley opposite camp, mainly in the patches of subalpine forest, where my boys and I had some shelter. Only tree added to the collection was a small-leaved Drimys. The 24 numbers also included 2 spp. of Uncinia from just inside the forest, two other sedges from boggy places on the grasslands, 2 grasses with the uncinias, a very prickly bipinnate Rubus, a big Pteris common in New Guinea high mountain forests, the first Asplenium for the mountain, and a striking Loranthus with red flowers in tassle-like clusters and of climbing habit.

Forgot to record on the 18th that I passed that day my 30,000 collection number in plants. Besides the ascent of the main peak by Van and John, that was also a red letter day in that I had my first bath at this camp. I will not mention the names of those who have had no bath at all. Too damned cold most of the time.

Our boy's coughs are not so noticeable today, and all except Van's Hetanin seems to have improved generally in health. We all have coughs. John is very silent today and seems unwell. It seemed yesterday that the two ascents of the mountain in quick succession were too much for him.

Sunday, June 21. Max. 12.5, min. 4 C. Heavy rain struck us a little after dark, as we were having our evening rum. Immediately, numerous leaks developed in the grass roof of our house, and we worked in the rain to secure a fly over it. Rain, and some strong, gusty wind from up valley during much of the night. Today's weather very bad. Completely overcast; mist blotting out the surroundings after mid-morning, when showers began. Steady, cold rain through the afternoon. The temperature outside my work tent at 5:30 pm. is a cold 43 F.

No botanical work other than charging the dryer and keeping it going. Most of my day spent in organizing and typing (6 pages) records of ascents of the peaks of Mt. Wilhelm copied by Van on the 18th. These records are not complete. For years, it would appear, natives have been removing records from the peaks. Some climbers of the peaks, for instance some of John Collins' brothers and cousins, left no records. A lot of research would be needed for a complete record of the ascents. On the 16th John saw records stuffed into a jam tin in a hole in the rock at so-called Dinner Pass, a few hundred feet below the summit of the South Peak;

he examined them only casually, and left them there. I have already mentioned a sheaf brought down from a repository under Gilliard's Monolithic Rock by Van. This lot seems to represent records left by parties on their way up to the peaks, although one was an original record of the ascent of the (main?) peak by Dr. John McInerney and party on 23 September 1943, brought down to the Monolithic Rock by natives and given to the Raynor, Semple & Keogh party in 1953.

Had a chance to do a little stocktaking. All the sickness, and loss of appetite, has left us in a good position for food supplies. But we are running low on silver. We were obliged to buy the great amount of garden foods which were carried up the mountain to us a few days after our arrival (at least a ton). But there was no need to buy it all with silver when we had plenty of salt and tobacco as trade. It was easier for John to dip into the cash bag, and that was what was done. Lately there has been wholesale buying of mammals, all for cash, which I did not realize until today, when, before the rain, 28 specimens were brought in by natives camped a thousand feet or so below us and snaring in the forests. These are mammals which most likely we will be able to trap, and learn something about at our next camp. This camp in the last week has become little more than a skinning factory for specimens from the zone below us altitudinally, when every effort should be made to get what is in this camp locality.

Monday, June 22. Much rain and strong wind down valley during much of last night. A wild gray dawn this morning, with snow on the mountain down to about 13,400-13,500 ft., a bleak wind coming off the snow, and still light rain at camp. Similar conditions prevailed to the distant Finisterre and Papuan mountains; obviously a general weather disturbance. However, the sun broke through about 9:30 and shone until after lunch. Cold afternoon with light rain after 4 pm.; wind down valley. Max. 10.0, min. 4 C.

Starting late into the field, after the boys had thawed out, I collected in the last bit of easy territory, down the stream from camp. Got a fair bag, the best plant being an obscure brown-green ground orchid of the Australian genus Sarcochilus. This is the second ground orchid from the alpine grasslands, the other being a Thelymitra.

John left this morning to establish the #2 Camp down the slopes at about 9000 feet. I picked the spot on the way up from Keglsugl. Local men will be employed to build a couple of huts for our comfortable living.

Tuesday, June 23. Max. 13, min. 5 C. Early morning with light frost though overcast after some light rain in the night. Mist on the high places most of the day, and over the Markham and Ramu valleys. Wind movement up valley.

Climbed to the Ramu-Wahgi Divide at 8,600 ft. to the north of camp, then followed the divide up towards the high peaks to an elevation of 13,200 ft. (4000 m.). The Wahgi side of the divide is mostly grassy (probably deforested by fire?) from camp level up, with decreasing patches of subalpine forest. The Ramu slopes are forested to the summit of the divide up to an altitude of 13,100 ft., where the forest gives way to long alpine grass with numerous shrubs (see small note book for lists of species). At 13,200 feet the long-grass community gave way to a sterile stone field near the summit of one of the minor peaks of the mounatin; a small gray Tetramolopium abundant there, and stunted versions of larger shrubs found at camp level. Found Detzneria, with its striking dark blue

or violet flowers and cold-feeling leaves at the upper edge of the long grasses. The prize of the day an extraordinary purple-gray Rubus with well-flavored fruits up to 5.5 cm long by 4 cm in diameter and weighing up to 27 grams. There was only one plant of this raspberry, on a rock on the grasslands at 3750 m. Am saving some of the ripe seeds for possible use in hybridization back in the States.

During my absence there arrived in camp (1:30) from the mission at Keglsugl Brothers Paul Seger and Herrmann Siehland of the Catholic Mission (Alexishafen bishopric). They will stay with us over night and climb to the summit of Wilhelm in the morning, weather permitting. These young tradesmen (Seger is a joiner, Siehland a mechanic) volunteer to work for five years in New Guinea without pay. But such is the arrogance of the priesthood, and the little esteem in which these young workhorses of the mission are held that Siehland, who accompanied two priests to the top of the main peak of Mt. Wilhelm on June 5, was not mentioned in a message left on the summit by the party, although natives accompanying the party were mentioned. Here is the record:

June 6 (error in date), 1959
Fr. Ralph Witgen, S.V.D.
Arrived here 11:20 AM
Visibility fair.
Both of us said Mass here.
Left 1:05 PM
2 Boys

Witgen's name (correctly Wiltgen) is misspelled, so Johnson, an American, must have written the note. Sanctimonius bastard.

Wednesday, June 24. Max. 14, min. 4.5 C. Overcast dawn with mist down to 13,000 ft. on the heights. Peak under mist all day. Good deal of sun at camp level and down valley. Thick mist driving up valley from about 5 pm. Some rain from a thunderstorm which formed over Bundi Pass late in the day.

Our missionary guests of last night departed at 5 AM for the summit of the mountain with several boys. The boys returned to camp about 10:30, the two brothers about 12:15, pretty much discouraged and bushed. They went up through the mist and near the summit found snow and very strong wind. Their English is not too good and I could not understand all the details. Anyhow, they turned back when quite close to the summit of the main peak. Had lunch and a long sleep, and returned to Dengalagu about 3:15 pm. Seger has done climbing in Switzerland. Plans to come back with proper alpine tent, etc. Many other people have found such clobber unnecessary for this mountain.

Botanized down the valley to 11,350 ft.; the barometer reading high today and correct altitude probably about 11,200 ft. Got 18 plants new to the collection, chiefly from the forest borders. A Rubus with salmon-pink flowers and another with white of small size; the first Saurauia for the mountain, a Piper in the subalpine forest undergrowth, Daphniphyllum, etc. An important addition to the collection was the third species of alpine grassland tree-fern for the valley.

Thursday, June 25. Max. 13.5, min. 5 C. High overcast early; no frost; rain from the Bundi Pass thunderstorm from 6-9 pm. last night; mist down to 13,500 ft. this morning; generally cloudy day but with a fair amount of sun

in brief bursts; wind movement from NE; clouds over the Ramu all day; more thunder in Bundi Pass this evening.

Botanized to the NE of camp in an area of wet, grassy glades, cold and with a very poor flora. Examined one of the larger forest patches across from camp in the afternoon and found a Galium, new for the mountain so far as I know. Profitable botanizing is about finished for this camp.

Today I caught my first butterfly for the camp. It fell from a tree to the grass, apparently half frozen; looks like a Delias, but like no Delias I have seen before. Yesterday I caught my first Odonata for the mountain; 10 specimens of a small damselfly, the male of which has blue bandings, the female pale brown all over. Self and boys did some bug hunting this afternoon; one boy with the beating sheet. Self dredged 2 spp. of small mollusks from the shallows of the lake and from the outlet stream. The damselfly must be of very recent emergence; I could hardly have missed it before.

Photographed for Van his fourth or fifth Neohydromys, and a pretty-faced Pseudocheirus, with curious peglike upper incisors, strange for both of us. Both specimens came from the vicinity of Keglsugl.

Van, following a report by John of owl pellets under a rock overhang some 500 ft. up the slopes opposite camp, examined the site and brought back a plastic bag full of material. A very curious little moss grew on dry ground under the overhang, apparently fertilized by the owl pellets and droppings.

Friday, June 26. Max. 13.5, min. 3 C. Clear morning; heavy frost on the grass; wind from N to NE, bringing a lot of cloud in morning; heavy clouds driving across Bundi Pass, to the high country clear. Another of those curious blackish bright days at high altitudes.

Took advantage of the good weather to climb along the trail to the summit to an altitude of 13,450 ft. (aneroid at camp before I left 12,000 ft.; on my return 12,050 ft.). A steep pinch of about 200 ft. between the lakes; slopes above the second lake very steep for some hundreds of feet, the heavy, rich-looking brown soil wet, worn by recent traffic, and the footing slippery in places. Travel mainly on rock above about 13,000 ft. and footing excellent. My main objective was the collection of Papuapteris linearis, of which I found numerous clumps beginning at 13,400 ft. in the long-grass community of the alpine grassland. This strange, erect fern is called BINGA in the Chimbu language. It is carried down as a symbol of prowess by men who climb the mountain. I discovered it on Mt. Albert Edward in 1933, and Hoogland & Pullen collected it on Wilhelm in 1946. Growing with the fern (in ~~interesting~~ interstices between grass tussocks) was little yellow-flowered Ischnea, a dwarf composite of the high places. For botanical notes see small notebook.

From about 13,500 ft. up to 13,500 ft. the mountain side is strewn with the remains of an American Liberator bomber which crashed and exploded, killing all hands, during World War II. They had bad luck. With 100 feet more altitude they would have cleared the crest of the ridge which they flew into, in the night.

John returned from down the mountain, having completed the establishment of our #2 Mt. Wilhelm Camp on Pengagl Creek at about 9000 ft. elevation.

Piunde-Aunde

Saturday, June 27. Max. 12.5, min. 3 C. Heavy frost followed by a perfectly clear day; the first cloudless day since the 18th. Ice is unusual at this camp, but this morning shady wet spots of ground in camp were crunchy until after 9 o'clock. Wind up valley. High peaks of our mountain covered on and off with mist after 4 pm.

I have spent the day in camp, working on collections, catching some insects, writing letters, etc. It has been another of those blackish days. Radiation and evaporations are so high that my typewriter ribbon dried out as it unrolled from the reel, and the carbon paper curled between the pages.

At camp the soil is a brown, fine grained peat for over a foot down. Our whole establishment is slowly sinking into this. I now have barely knee room under a bush table I had built in my work tent. I can no longer stand erect under a drying rack suspended from the peak of the tent, where formerly I had two inches of clearance.

This has been a binatang (insect) day for my boys. Had one on the beating sheet, the other after butterflies, etc. with a hand net. Results have been fairly good for this locality. This is not insect country. Only the one species of damselfly has turned up in Odonata. Have only 4 examples of one of the four spp. of butterflies seen (they are rapid, dodgy fliers, hard to get near). Night flying insects are so few that a light trap has been rigged only once.

John has climbed the main peak again. Left camp about 10 am. with the intention of attempting the climb via the Ramu-Wahgi Divide. Had had going from about my 13,200 ft. powition of a few days ago. Made several attempts to follow the rocky crest of the divide, and finally had to drop down considerably into the valley of Gilliard's Box Canyon. Much more difficult than the regular route. John would seem to be the first man (white at any rate) to climb the peak three times. Patrol Officer Viall (or Vial) who made the first ascent in 1938, repeated it the following year. In 1957 or 58, Patrol Officer Lucas made two ascents. John made the altitude of the main peak 15,050 feet today; he made no aneroid reading before leaving camp. He copied records which others had deposited at the Dinner Pass. With John was Tobram, younger brother of Wak, and another native. The ascent took 3 3/4 hours.

Piunde-Aunde/Pengagl Creek

Sunday, June 28. A day almost as yesterday, but mist clouds began driving over from c. east about 11 am. After that we had only occasional glimpses of the higher peaks. By 4.30 the usual white cloud mass from the Ramu was spilling over into the head of the Chimbu through Bundi Pass. Max. 14.5, min. 2.5 C.

The day spent in the finnicky business of packing collections and gears in preparation for tomorrow's move down the mountain. I plan to collect on the trail tomorrow, the plants from the alpine and subalpine to be considered a part of the collection from this camp. I still have to examine the alpine grasslands of the lower ¼ mile of the glacial valley, and the subalpine forests which extend to an unknown distance below that (visibility was very poor when I climbed the mountain nearly three weeks ago).

John left for Keglsugl this afternoon to take charge of the transport in the morning. The carriers coming up the mountain will bring the 5 weeks' supplies which we left in the mission store shed at the airstrip. Leaving these loads at the new camp, they will continue on up here to Piunde-Aunde, and move our loads from here down to the new camp on Pengagl Stream.

Some of the boys have washed clothing and "cold shirts" (sweaters) today. All look forward to the vacation of this camp tomorrow. Morale has been good for the past week or so. Earlier, when we had so much sickness, and the weather was so bad, I thought at times that it might be necessary for us to shorten our planned stay of three weeks. Botanizing time was cut short 2 days by sickness and one day by bad weather impossible for field work. The last two or three days have been of a character that will leave pleasant memories of the camp. With the fine weather the nights have been colder. This morning was the coldest since I have had the max. and min. thermometers rigged. And as the grass of the walls of our hut has dried it has shrunk and loosened on the framework. Now we have so much ventilation that when the cook lights his fire in the morning, in the kitchen nearby, the smoke filters through the walls and fills our place. We have only one more night of risk of the hut going up in smoke. We have a fire in the evening, and leave it burn low after we got to bed. The central fireplace, now burned about 6 inches deep in the peaty soil, is surrounded by a curbing of small logs. The rest of the floor is covered with an inch or two of dry grass, which serves as a carpet and on which we spread our bedding. About every other night this grass catches fire.

Monday, June 29. A fine day for our move down to Pengagl Creek. With my two botany boys I left Piunde-Aunde Camp at 7:55, leaving Van to attend to final details of breaking camp. Met the first carriers coming up the trail well before 9 o'clock, and John about 9:30.

Altimeter read 12,150 ft. at the top camp; it was 11,600 ft. when we arrived on the 8th. Following altitudes are today's readings, and will need to be adjusted when the aneroid can be checked or a possible present atmospheric low is over.

Started collecting just below my previous lowest point in the glacial valley, at 11,350 ft., and between there and the lip of the valley at 11,300 ft. collected a big Quintinia which occurred at the top camp but was only in flower bud there, a third Podocarpus sp. for this subalpine forest, 2 Elaeocarpus spp., Dodonaea viscosa (a solitary small tree), etc. new to the collection. The most important of these probably a white-flowered Decaspermum, first seen or recognized today

and much like another myrt. which was common at Top Camp. The recognizable subalpine forest ended at about 11,000 ft. At that altitude the forest was largely of the Decaspermum, the other just mentioned myrtaceous tree. Libocedrus and a Timonius came in close below the lip of the glacial valley and were abundant with the two myrts. and occasional Podocarpus compactus (this may be P. papuanus, the two being hard to distinguish). The Decaspermum continued to the foot of the escarpment at 10,400 ft. An Ilex was very abundant at 10,800 ft. and almost constituted a vegetation zone of its own. (For other notes on vegetation see small notebook).

Reached Pengagl Creek at 2:00 and had lunch there. Moved on down the creek at 3 o'clock and reached camp at 4:00. Altitude at my lunch place at the foot of the escarpment was 10,100 ft., at the new camp 9,700 ft. On the 8th I made the new camp site 9,150 ft. From the foot of the escarpment, I could see some half mile or more up the ravine of the creek a big pale scar left by the rockslide which, about 1½ years ago according to a local native who joined me on the trail, must have dammed the creek. A flash flood when the dam broke scoured the bed of the creek and uprooted most of the forest on flood terraces for the whole length of the creek down past our camp. It must have been a flood of great violence. And so recent was it that blobs of soil and collections of small stones are still atop some of the rocks in the stream bed, there not having been enough rain to wash them off.

John surpassed himself in building our part of the camp. The hut he built, 16 x 20 feet, I have named Pengagl Lodge. It is thatched with Pandanus leaf, one wall is of the same material, the others of bark (Libocedrus and Elaeocarpus), and there is a big open fire-place of sticks and bark, and stones cemented with mud. On either side of the fireplace is a deep seated bench of ski lodge type. There is a dining table of round sticks covered with a square of new Pandanus matting, some shelving, and by the time I got there our tube beds of canvas stretched on small poles had been rigged. There is a good pandan leaf kitchen for the cook. The boy's house, of the same construction, had chinks on the roof too noticeable to pass inspection, and I had John rig a fly over it. The local natives had just completed a snug, very smoky low pandan house for their own use, as visitors to our camp. Work tents for Van and me had been rigged on a practically devegetated flood bank of the creek.

We had 44 carriers, men, boys and women, for the move down the mountain.

Tuesday, June 30. The morning fine and clear early; turned cloudy about 9 a.m. (the clouds coming through the Bundi Gap, approximately east); steady rain from 2:30 to about 4:00 p.m.

Had my work tent moved up to a safe place on the high bank, beside our living quarters; Van's, being in a much less risky position on the flood terrace, remains there, at least for the time being. My day spent in the preparation of yesterday's gathering of plants numbering about 45. Have used up all my dryers and corrugates and still have a few numbers on hand.

Van and John shot two large Pipistrellus last evening; a marsupial mouse brought from a native today. Purchase of mammals from natives is now strictly limited to the very rare little hydromine mice and the marsupial mice. Bats are another exception, and today a native produced a specimen of the mountain, Syconycteris.

Piunde-Aunde-Pengagl Creek

Small boys brought in about half a dozen frogs of two or three species. Payment for these is a quarter of a stick of trade tobacco or half a page of the Bergen Evening Record per frog.

Wednesday, July 1. Steady light rain resumed about 7:30 last night. Sky clear towards morning. A raw, overcast dawn with wind coming down the creek from the heights; very little sun all day; no rain.

Worked the morning on collections on hand. Having no room for any more vascular plants, I spent part of the afternoon gathering mosses -- 22 species. This moist forest abounds in bryophytes low on the trees, on logs and stumps, and on the predominantly woody undergrowth. Most of them are of pale brown or brownish green color. Many of them give a fuzzy effect to the trees.

Work of completing the rigging of camp goes on in a rather desultory fashion. Today a bathhouse has been built, and a lean-to for my thermometers. Our Pengagl Lodge has not the comforts it might have. It would be improved by steam heating. The big fireplace does not thrownenough heat out into the big living-bedroom. Abundant ground moisture is coming to the surface. Excepting in the neighborhood of the fireplace the lodge is damp and cold. Now at twenty to six in the evening, John the unreliable is off somewhere in the bush, and Van is contriving a makeshift for the door which should have been built this morning to keep out a wind which comes down from the heights regularly at night.

Forty-five traps set last night yielded 7 specimens: the common Rattus niobe and 2 Melomys species. An Antechinus brought in by a native. Another pipistrellus shot last night.

My first light trapping for insects at the camp was spoiled by the rain last night; catching promises well. Today I had a fancy hood for the trap made of sticks and a sheet of the sisal kraft paper which I carry for the emergency pickling of plants.

Thursday, July 2. First recording on the minimum thermometer was a chilly 6.5 C. this morning. Temperature outside my work tent 42 F. at 6:30 a.m. Clear early morning followed about 8 a.m. by nearly constant cloud from Bundi Gap; drizzle to light steady rain from 2:30 p.m. to 8:30.

Botanized down Pengagl Creek to its junction with the drainage stream of the Piunde-Aunde Lakes, there called the Iubuka stream; distance about one-third of a mile. Left plants growing near camp for easy collecting on a rainy day. Have about half-dozen numbers left over after filling all my dryers. Nothing very exciting but it was interesting to find Coriaria a common shrub of the floodbanks. Poor visibility limited my collecting to the banks of the creek.

Insects are coming in rather well. About half-dozen butterflies of three spp. today; numerous spiders collected by two urchins who accompanied me most of the morning; last night too cold with a breeze coming down from the alpine heights for much to come to the light trap. Today's big catch was over 30 damselflies which I found immobilized by the cold, perched on the stems of a grass tussock in the creek bed. We just picked them off with our fingers and put them into the killing bottle.

Van and John jacking last night, in different directions, until about 10:30 without seeing a thing. Trap yield fell off to a solitary Rattus niobe. A bat net set on the Keglsugl path caught nothing. Two more Antechinus brought in by natives.

Pengagl Creek

Friday, July 3. Max. 18, min. 7 C. Day began clear; by 8:30 clouds came over through Bundi Gap; from about 10 to 2 o'clock clear and sunny; some showers after 4:30.

Worked up what used to be the main track to Piunde-Aunde before the rock-slide altered the nature of the creek and made a feasible walking route of it. A forest with very open canopy, and some of the principal trees with open crowns (Podocarpus papuanus, small-leaved Weinmannia, etc.). In consequence, there is an abundant substange layer and woody undergrowth. No definite subcanopy layer where I was today. Lower trunks of trees well mossed; and supporting an abundance of few spp. of ferns. Ground a good deal disturbed by pigs near the trail. The only large tree seen was the podocarpus which grows to at least 100 ft. tall and up to about 3 ft. diameter. It produces a well formed log; one near camp estimated by John (who has sawmilling experience) to contain 300 super feet of timber.

A couple of the common Rattus, a Melomys, and (new for the mountain) a Parahydromys taken in 116 traps last night, the water rat from the junction of Pengagl and Iubuka creeks, where there is a nice pool and some old drift logs Nothing seen by Van or John in another evening of jacking. This is hard to understand.

For the first time on the mountain we have mail, but there must be more somewhere. Latest dates on letters are June 5 for USA, June 8 for Australia. The one Time air edition magazine to arrive is dated June 8. The small batch of mail arrived byy the hand of luluai Kindua, via the Dengalagu mission, via ADO Kundiawa. Terry Dwyer, until recently ADO Kundiawa, offered to send on by runner any mail that arrived for us. He did nothing. Today's batch followed a report which I wrote John Womersley and which he would have received (via the Catholic Mission plane to Madang) on Tuesday.

Saturday, July 4. Max. 18.0, Min. 9.5 C. Light rain continued well into last night. Today completely overcast. Steady light rain began at 3:00 p.m.

Have on hand more plants than I can dry, but in case tomorrow should be wetter than today, I went into the field after lunch. Worked up the bed of the creek, from which I had a fair view of the forest face. Sheltered from the rain under the hanging dead lower leaves of a Pandanus tree. Got tired of this after half an hour and made a dash for camp, arriving half wet.

Sent my alpine and subalpine collection of plants (8 bundles) down to the mission storage shed at Keglsugl strip, where conditions are nice and dry.

Among six mammals added to the collection today were two pale brown rats which look somewhat like Pogonomys but are of uncertain identity. Another Parahydromys trapped at the junction of Pengagl and Iubuka creeks. Mammals are coming in slowly. Total for the camp thus far 37 specimens of 8 species.

Sunday, July 5. Max. 15.5, min. 9.5 C. The rain that started yesterday PM, coming up the valley, continued as a misty drizzle, sometimes heavier, through the night. A short break until about 11 this morning, then heavy rain until 3 p.m. The one consolation about this miserable weather is that we are not suffering it at our alpine camp.

Pengagl Creek

A hasty gathering of a few plants growing near camp, and left for such a day, was all I could do in the field. However, I had a big lot of material on hand that needed attention today after a double shift on the drying apparatus which kept me up until 12:30 a.m. Insects came in to the light trap sporadically during last night's watch, and the catch was good in total.

Van had little on his table today: 3 common Rattus niobe, a R. ruber (first for the mountain) brought from down Keglsugl way by a native, and a Pipistrellus shot last night. Van realizes now that a native dog has been going the rounds of his personal trapline. All meat baits and lures were cleaned up last night, and several traps sprung including 3 steels. The suspected canine culprit was seen by Van last night. Three new traplines tonight.

Monday, July 6. Max. 14.5, min. 6.5 C. Clear and sunny to about 10 a.m.; rain began 11:45 and continued with very little interruption until near dark.

The three of us had a moderate stack of mail prepared to catch the regular Monday plane of the Mission at Keglsugl, but the plane arrived much earlier than expected and had gone before our messenger arrived.

Had a good morning in the field, up the old trail parallel with the creek to where it comes on to the creek again. Have 23 numbers processed and six left over owing to shortage of dryers. The take includes two canopy trees: a common Timonius which looks like a species first collected just below the subalpine on the slopes, and an Elaeocarpus with golden yellow young leaves which make it conspicuous in the forest. Almost omitted to mention another canopy tree collected: the Decaspermum (so it appears without comparison of material) which came in at the lower levels of the subalpine and persists commonly down to at least this level.

Had my boys cut a tall old Pandanus of the kind which bears edible large seeds and is called Karuka in the Chimbu. A big red-flowered Dimorphantera was massed on the pandan. And among the dead old leaves my boys, rummaging around, found a leaf nest with two Pogonomys in it; the species new to the collection. John steel-trapped a third Parahydromys, several Rattus niobe from the new traplines; and, brought up from down below by a native, late in the day, were 3 Petaurus tafa.

Tuesday, July 7. Max. 16.5, min. 7 C. Last night partly cloudy, partly clear. This morning clear and sunny to about 10 o'clock; overcast after that and some mist on the heights but no rain here.

Botanized for about ½ mile down the slopes towards Keglsugl. Wit the good visibility of the earlier part of the morning I spotted two more canopy trees in fertile condition and collected them: Platea and one of the Cunoniaceae which looks like Schizomeria but has 3-5 foliate leaves. I followed the pathway. Most of the trees my boys cut fell over the road, which of course had to be cleared at considerable expense of time and labor. Some spot lumbering for pit-sawing has been done in the Territory I visited and in consequence conditions were disturbed locally and scrambling bamboo running rampant.

Pengagl Creek

Jacking last night by Van, John, and Kim the cook resulted in the usual blank for this camp though Kim saw, shot at, and missed a small arboreal rat. Last night Van trapped his first marsupial mouse for the mountain (all others have been bought from natives), the first trapped specimen of the big brown Melomys was taken, and several common Rattus niobe. The complete lack of results from jacklighting is mystifying. The country looks promising. The natives say that phalangers live here, concealing themselves by day amongst the dry dead leaves of the big Pandanus trees.

Today I have my first dragonfly for the mountain, netted in the camp clearing by the snotty nosed small son of Demkana, the man who claims ownership of practically all the land, and birds of paradise thereon, from Keglsugl to the top of Mt. Wilhelm. Demkana attached himself to our camp as a permanent fixture, and wood and water joey, at Piunde-Aunde and is still with us. A husky, hirsute, cheerful man with small beard and clad only in a netted sporran in front and bunch of leaves behind, he has influence with the other Chimbus and is a pleasant fellow to have around.

Nouhouysia, an obscure and controversial monotypic endemic genus of the Guttiferae, is plentiful in the substage of this forest. In 1956 I was asked by Perry of the Arnold Arboretum for material of it for anatomical study but found only one stunted plant (on Mt. Riu, Sudest Id.). Today I have pickled ample material for nodal, foliar, floral and fructal examinatiion.

Wednesday, July 8. Max. 15.5, min. 8 C. A dull, dark dawn; no air movement up or down the valley. Steady light rain from a thunderstorm in Bundi Gap started here at 8 p.m. and continued after we had gone to bed and to sleep. Today completely overcast; mist low in the valley at times; drizzling rain began a little before noon and continues now at 6 p.m. Wretched weather, but we can achieve some field work.

Worked up Van's first trapping trail which was cut on the slopes of the steep ridge which bounds the valley of Pengagl stream on our side, on a heading a few points south of west. Van cut about 3/5th of the way up to the crest of the ridge, 500-600 feet above camp. I completed the job in about an hour this morning. The ridge steep. The forest poorly developed, with very broken canopy and much scrambling bamboo. Visibility extremely poor, and for the most part only in silhouette against the dark sky, but so far as I could see there was no real change in the character of the forest as compared with the valley bottom. I saw no unfamiliar trees of the canopy, although several new undergrowth and substage elements, including a big-fruited Helicia, came in. The small-leaved Weinmannia was common to the ridge crest. Podocarpus papuanus and a Papuacedrus were plentiful there as supercanopy trees, and a longish-leaved podocarp, like the one of the lower end of Piunde-Aunde Valley, occurred in the canopy. The forest very poor in species of all categories. I found, however, some unfamiliar mosses. The trees and ground fuzzily rather than heavily mossed.

Today's prize in the mammal department was the highly specialized water rat Crossomys caught by John in a steel trap about ¼ mile below the junction on Pengagl and Iubuka creeks at an estimated altitude of 8500-8600 feet. Great paddle-shaped hind feet (even the legs enlarged), very thick tail with dictichous lateral lines of bristly hairy, elevated nostrils, and concealed ears only 1 mm long. Natives brought in from down below a Eudromicia, a Lorentzimys and 3 Melomys spp. Only the common Rattus in Van's traps.

Pengagl Creek

Thursday, July 9. Max. 13.5, min. 9.0 C. The drizzling rain continued on into last night. This morning brought a variation in the foul weather -- valley filled with mist down to the ground. Some sunshine between 8 and 10, then overcast; light rain on and off (occasionally heavier) from noon through the day.

Botanized to about ½ miles up the creek for a good bag including a very common big-fruited Elaeocarpus of the forest canopy (bark used for houses), a pretty white Clematis, a pubescent white-flowered Vaccinium previously found only at Kaindi, and several bright small orchids. Demkana's small son Thomas brought in a very desirable red Rhododendron with showy long tubular solitary red flowers which occurs sporadically as a high epiphyte on big trees in the forest and is called Ditin in Chimbu. Usually I discourage natives from bringing me botanical specimens; they nearly always bring common wayside species. But today, Thomas' tender age notwithstanding, I rewarded him with a stick of trade tobacco and a sheet of newspaper (which no doubt father will appropriate).

Not a thing in the professional traplines last night; they have been moved today. From John's steel sets down the creek came another Parahydromys. Wak contributed a snared Pseudocheirus which might by mayeri.

A short spell of sunshine after lunch encouraged me to get out my camera (which has been put away since the day we arrived in this camp) and set up to make close-ups of several orchid species which I have gathered during the past 10 days. Had half-forgotten how to use the extension tubes, and just as I got the first flowers (a fiery red Dendrobium carried down from Top Camp) in focus, down came the heaviest rain we have had in two days. Shot only one frame.

Friday, July 10. Max. 16.5, min. 8 C. A little clear in early morning; high mackerel clouds. Overcast by about 10 a.m.; first light rain 1 p.m. thereafter drizzle and overcast broken by very brief glimpses of the sun; weather coming down valley in p.m.; it was up valley this morning.

Expecting another morning of poor visibility, I botanized down Pengagl Creek. About ¼ mile down I decided to investigate a patch of low forest on the left bank and found a small clearing almost overgrown, a good trail running parallel between Pengagl and Iubuka creeks, which are very close together there, and a pig house. Cut track the few yards to the Iubuka in two places. The banks are trackless and except in one place where a leaning tree high over the stream, and slender, had been used as a bridge, and at my end of the bridge a very strong trip snare had been set some little time back. Had enough plants by eleven and hurried back to camp in the hope that weather conditions were on the mend and that I would be able to make some close-up pictures before lunch. Made several, but under bad conditions.

Am getting reasonably good insect catches at the light every night. Every brief spell of sunlight brings out the butterflies along the course of the creek and in the last two days I have taken at least 4 spp. new to the collection. Today, for the first time, small lizards (skinks) were observed on the rocks of the creek and several were caught. The jacking almost every night (every night fine enough) has yet to produce a mammal, but it has been productive of frogs of which over 100 have been taken at this camp. Van continues assidously the taking of ectoparasites and blood smears of mammals. Estimates that he now has over 1000 ectos.

Pengagl Creek

The new traplines yielded the usual big catch of Rattus niobe plus two Melomys. Natives brought several things from lower elevations, including 2 Eudromicia.

Saturday, July 11. Max. 15.0, min. 8.0 C. A rosy dawn indicated some change in the weather; except for cloud over Bundi Gap, last night was clear and starry after the light rain stopped (probably before midnight). About 50/50 sun and overcast until 4 p.m., when light rain began from down valley; ending at five.

Sent the boys out to collect and spent the whole morning making close-up photos of rhododendrons and orchids. Spent a lot of time waiting for the sun to appear, and shifting the camera and subjects to new backgrounds as the sun shifted; the best sunlight always brought puffs of wind from down the valley. Numerous natives watched the proceedings.

A special charge of my boys was the collection of good leaves of the big Pandanus (and only species seen so far) of this area, called Karuka by the natives. On a request of over a week's standing, a native yesterday brought 20 dried seeds of the species, and today another native brought twenty-four. The seeds are prized as food by the natives. Those brought in had been taken from the fibrous pulp of the fruitheads and stored, and smoke-cured, in roofs of the houses. This pandan grows wild in the forest at this general altitude. It is also planted about villages and and on garden lands at the upper levels of cultivation. Have failed to find flowers or fruits on the trees. The natives' expectation that more fruits will be ripe not this Christmas but next Christmas, suggests that the trees may flower and mature fruit every other year. I am trying to get seeds in place in the fruithead, which in other mountain areas I have visited is often split into sections and thus smoke-cured; the arrangement of the seeds (drupes),whether singly or in syncarps, is important in classification.

Van last night, jacking in light rain, shot the first arboreal mammal for the the mountain, pretty-faced Pseudocheirus . A big lot of rattus and 5 Melomys (white-bellied) in the new traplines last night. A Melomys-like rat new to the collection brought from "down below" by a native.

A stir in camp was caused early in the afternoon by the arrival of an armed constable with a letter from the ADO Kundiawa informing us that District Commissioner H.P. Seale will arrive on Monday by air from Goroka and depart Wednesday morning. Before we left Goroka, "Bill" Seale asked if he could visit our camp about this time. Officially, he will fly to Keglsugl to talk to the people about building a road or roads for motor traffic, while the people are still receptive to talk by Government. He is keenly interested in plants. Has started a reafforestation scheme on the induced grasslands of the extensive Asaro (Goroka) Valley, and has pushed tree-planting in the town of Goroka.

Sunday, July 12. Max. 16, min. 8 C. The day dawned red to the east. Soon the sun could be seen shining on Bundi Gap. There was a rainbow up the Pengagl valley, and sun beyond it on the alpine heights. Rain drizzled on the camp from a high cloud drifting over from the north. Good, drying sun most of the day after that. The best weather in the two weeks we have been here.

Pengagl Creek

Great excitement among the natives about the coming of the kiap tomorrow. A gang doing up the road between our camp and the Keglsugl strip. We have had our second visit from the luluai, this time wearing his official peaked cap and badge.

Followed an old track over to Iabuka Creek, about ½ mile distant, approximately north. Shortly after leaving Pengagl Creek one comes to a seepage area of maybe an acre, open through the fall of trees and the wetness of the ground. Big pandans common there. A slender Olearia new to the collection but past flowering, grew on the wet ground; several orchids new to the collection grew close to the ground in heavy moss. Otherwise nothing new or different from the general run of surrounding forest. The carnation-scented big white Rhododendron common and conspicuous on logs; red Epiblastus on mossy ground and logs. A steep climb with bad footing for about 100 above the swamp brought one to the crest of a rather level-topped ridge from which the trail dropped down to the Iabaku, there about 100 ft. higher than the Pengagl. A wild stream, full of big round, mossy boulders, and undisturbed by man or pig. Very tall forest on the ridge top; the largest trees coniferous: Podocarpus papuanus?, a big-leafed podocarp, already collected, and Papuacedrus. Trees at least 120 ft. high x 3 ft. diameter.

The forest soil in this locality is dark gray and friable and looks fertile. A depth of up to about 20 feet of soil, with varying quantities of boulders intermixed (glacial till?) shows in the eroded banks of Pengagl Creek. These soils would be valuable to a more advanced people. They do not appear to be at all peaty.

Monday, July 13. Max. 17.5, min. 5.5 C. Another rosy dawn followed by a beautifully fine day until about 2 p.m., when the sky clouded over and intermittent light showers began.

John and I went down to the Keglsugl strip after breakfast to meet Bill Seale. His chartered Cessna arrived from Goroka a few minutes after nine, landed near the bottom end of the strip, and did not have enough power to taxi to the upper end until it unloaded. Bill brought as a surprise guest for us Ken James, manager of Buntings at Goroka. I botanized back to camp for nothing very much. The forest at the lower levels much disturbed. No fundamental change from our camp level down to the strip, 550 feet below.

A crowd of native dignitaries at the strip to meet Bill. His pow pow with them was held at our camp. Two luluais and a number of tultuls present. Some of the men wore traditional Chimbu dress, others various degrees of white man's dress. Lulual Kindua affected, besides his cap and badge, a shirt and a laplap, gay necktie, and one lady's pearl earring. Conference went well according to Bill. The government will supply the tools and the people the labor for bringing a motor road from its present termination towards Kundiawa to Keglsugl or Bundi Gap. Eventually, the road will connect with the coast at Madang.

Four jacking parties out last night (Van, John, Kim and Wak). Van had all the luck: a fine big Phalanger vestitus and a small Pseudocheirus.

Pengagl Creek

Tuesday, July 14. Max. 19, min. 5 C. A clear night followed by the coldest morning (39 F.) since we have been at this camp. Today fine and for the most part with only scattered clouds. We are enjoying this weather.

Our guests, in company with John, Demkana, Wok, and the policeman, left camp for the lakes at 7:30 a.m. and returned at 4 p.m. Had very good weather. A gang had been sent to repair the road, but they did not start until late yesterday and this morning the party found the improvements to extend only about 10 minutes up the mountain. Bill Seale, a big, heavy man, probably in his early fifties, had hard going. Ken James and John went on to the second lake. Seale will have the trail put in proper order - promptly. He is much interested in facilitating the travel of anyone who wishes to climb the mountain.

Botanized down the creek to beyond its junction with the Iabuka and got a bag sufficient to make it necessary to run a double drying shift tomorrow. A rather surprising number of alpine herbaceous plants descend the streamway to this altitude. This morning I collected one of the two species of "New Guinea Edelweiss" (Anaphalis). A buttercup, an Epilobium, etc. are common in the creek bed.

Jacking last night, Kim shot a fine Pseudocheirus cupreus - new for this camp.

Our guests return to Goroka in the morning,taking mails and films for processing (13 films of mine, and about as many of Van's).

Wednesday, July 15. Max. 18.0, min. 5 C. Last night clear at first, later clouding. Today generally overcast with heavy clouds. Light rain began at 4:30 p.m. and ended within the hour. Evening overcast; clearing later.

District Commissioner Seale and K.C. James returned to Goroka this morning by chartered Cessna 180; John went down to the strip to see them off.

Had to stay in camp this morning to prepare a quantity of material on hand from yesterday's gathering. Botanized up the creek, and down the old trail through the forest back to camp. Visibility bad most of the time. Eight or ten numbers included a showy cream and purple Dendrobium of lowland rather than highland affinities, and a Fagraea, the latter a minor canopy tree and the first of the genus seen on the mountain.

John, on his visit to Lakes Piunde-Aunde yesterday took the temperature of the water of the lower lake. Surprisingly (if accurately recorded), the temperature 4 inches and about 12 inches below the surface was 14 C. The temperature of Pengagl Creek at our camp today was 11 C. at 1 p.m.

Thursday, July 16. Max. 16.0, min. 5 C. Overcast dawn, ditto most of morning, a little rain between 12:30 and 1 p.m., some sun in early afternoon.

Botanized up the creek to Gilliard's Camp, thence down the old trail to camp. Paid most attention to an area of an cre or more of Equisetum-Carex bog a little towards the mountain on the trail from Gilliard's camp site at an altitude of 9750 ft. according to my aneroid on June 6 (roughly 3000 m.). A number of alpine

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elements there: Anaphalis lorentzi and A. sp., Styphelia, Vaccinium, Wahlenbergia, Pterostylis, Haloragis 2 spp., and several grasses. In brushy growths on the edge of the bog I found climbing one of the Apocynaceae - a lowland element. Olearia and Dodonaea viscosa comprise most of the brush; a red Rhododendron (collected at Piunde-Aunde?) also there.

The last three cold nights have considerably lowered my average of catches at the light trap; the dull weather, and cool temperatures during the day reduce the butterfly catch. During a short spell of sunlight this morning I netted a fine gomphid - the second dragonfly for the mountain.

Three parties out until after eleven with jacklights last night brought home a very big Phalanger vestitus (Kim) and a small brown Pseudocheirus (John). Nothing special in traps, but yesterday an Anisomys, the first for the mountain, was taken in a steel set by Tobram.

Since our arrival at this camp I have been searching the forest for Xanthomyrtus, one of the characteristic trees of the forest (of LJB.). This morning I found two trees. Some natives happened to be there at the time. They gave me the Chimbu name for the tree (EN) and said it grew in abundance along the mountain trail, somewhere below the glacial valley. I did not recognize it on the journey up or down, possibly because of the poor visibility in the forest. Shall have to climb the slopes until I find it.

Friday, July 17. Max. 17, min. 5 C. A fine, bracing morning, mostly sunny. Afternoon soon overcast; light rain from a thunderstorm over Bundi Gap from 4:15 to 8 p.m.

Was obliged to stay in camp this morning to prepare the bi lot of plants collected yesterday (still have some of them on hand). As I was photographing an orchid about 11 o'clock an armed constable walked into camp with more mail from Kundiawa. Held him for a couple of hours while we replied to some of our letters.

Went down the road toward the airstrip after lunch. Tried to reach the main creek where a native pig bridge crosses it, but could not find the track. Poking about in the forest on the edge of the gorge of the creek, I came to a distinct change at about 8700 ft. (3650 m) if the top of the airstrip is 8500 ft. A scale-leaved Podocarpus (P. imbricatus?), not seen on the mountain before, became a common tree reaching large size in the canopy layer. Other unfamiliar canopy trees included one with the heavy branching habit of Nothofagus , a big-leaved Quintinia, etc. This change of the forest took place not far above the topmost gardens on the slopes, and might have been expected as an indication of cultivable land.

Another Pseudocheirus forbesi shot by John last night; this morning, in a new trapline on Piunde-Aunde Creek, he had two Peroryctes ornatus and two Melomys. Van had in all 18 mammals on his table. Jacking up the creek by Van last night yielded no mammals, but he collected near the water 15 frogs of 3 species. Three or four individuals of one species of frog carried, completely buried under the skin of a leg or the belly, one or two big, thick leeches. Looks like a very interesting record.

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Saturday, July 18. Max. 19.5, min. 6.5 C. Good clear day until about 3 p.m. Smart rain from a thunderstorm over Bundi Gap from 4.15 to 5:30.

Worked until midnight last night to catch up with the drying of plants, and had to spend the morning in camp to deal with material on hand. Am still a day ahead of the dryer. Botanized in the afternoon down the Keglsugl trail to near the edge of the primary forest, then across Iabuka Creek just above the junction of a big stream which rises in Jimmi Gap (confusing name, for the Jimmi River is far from this gap). Followed the Jimmi stream up a little, and it being unfordable for a booted man, sent the boys across to investigate the other side, on which there is good tall forest. The locality yielded the first Ficus and the first Impatiens (salmon pink) for the mountain - altitude about 8500 feet. Rhododendron macgregorae, past flowering, grew on the steep sunny banks of the stream.

No jacking last night. Another Anisomys in traps this morning. Van now has 27 species of mammals for this camp, which is good for New Guinea. The natives say that tree-climbing kangaroos and Zaglossus occur here, but are seldom seen. A hunting party of three, including Wok with a gun, camped last night on the next big creek to the south to hunt Dendrolagus, but came back with a rather stale Pseudocheirus forbesi. Luluai Kindua claims all the land over there.

Sunday, July 18. Max. 18, min. 7 C. Somewhat cloudy at times, but one of these rare days with no rain at all. The cloud drift here is practically always from the east. Must be deflected SE weather, for the SE has been blowing at Goroka for some time.

Followed one of our new trails across to Piunde-Aunde Creek. Not much in the way of plants. That is a poor locality botanically. Struck the creek where a seepage slope of about ½ acre is covered with tall pit-pit (wild sugarcane) in which grow a scattering of the carnation-scented Rhododendron and second growth trees of the forest: mainly Saurauia with big, prickly leaves. Some small saplings of Papuacedrus also there on the wet ground (and in a Pandanus swamp near camp).

Many mammals today from new traplines. Possibly a Pogonomys (sylvestris) new to the collection. A big water rat in one of John's steels over on Piunde-Aunde Creek. Looks like Hydromys, but the muzzle is very broad and the hair brownish and somewhat bristly. The end of the tail is missing.

The Chimbus would appear to have adopted a 5½ day week. On Saturday afternoons we have numerous visitors; Sundays the same. The women bring food to sell for salt or money (the younger ones doing a lot of loitering and tittering lately); the men and small boys frogs and skinks and the odd mammal. Usually there are a few mangled butterflies or damselflies, or a flowering branch or two for me.

Monday, July 20. Max. 19.5, min. 7.0 C. Weather as yesterday until 4:15 when light rain started from a thunderstorm to the SE and lasted until 5:30 p.m. Light rain from 6:30 to about 8 last night.

Followed the old road to Gilliard's camp site and the creek beyond, thence down the creek home. One of those disappointing days. The undergrowth along the

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track was so thick (Coprosma, small-leaved Rapanea, bamboo, etc.) that my view was mainly of canopy trees. The canopy broken (hence the thick undergrowth), tree species few: largely Podocarpus papuanus (?), Decaspermum, and a small-leaved Timonius; the brown-leaved Elaeocarpus also common, Platea too. All but one of the several sizable trees my boys felled dropped across the trail, and the trail had to be cleared. The other tree hung up hopelessly and had to be abandoned. About the poorest day of collecting I have had on this trip.

Probably the best part of today's collection, for me, was a nice lot of five gomphids taken in a few minutes in the bed of Pengagl Creek near Gilliard's camp site. Van has a tremendous number of mammals from new traplines; mostly common rodents, but including Anisomys and Lorentzomys. An old native brought 2 trophy skulls of Dendrolagus, 2 of Dorcopsulus, and one of some large wallaby, said to have been taken higher than our camp and towards the big creek to the south. From a rock crevice somewhere down Pengagl Creek, via small boys, came 7 small Miniopterus. Van had altogether today 51 specimens of 11 species.

Tuesday, July 21. Max. 21, min. 8 C. Light rain c. 6:30 to 8 last night. Night cloudy, masking the full moon. Low mist that morning followed by a dull day, the sun breaking through briefly at times. Smart rain between 2 and 3 p.m.; light rain about 11 to noon.

Botanized about the 2650 m level down the trail and in to the high bank of the Iubuka Creek until driven home by the rain. Only 11 species taken, mainly small trees and ferns. Put in some spare time checking and writing checks in payment of May accounts. The bills have only reached us lately. Our creditors will all know where we are.

Van's prize mammal today was a specimen of the big-eared bat Nyctiphyllus, brought by a native from somewhere down in the populated zone. Trapped mammals included 3 Anisomys. Total species for the camp is now 31 or 32. Strangely, after no results for a week or more from jacking, something is shot almost every night now. Last night a Pseudocheirus forbesi by John, a big white-bellied Phalanger vestitus by Kim. Van has worked late on the preparation of specimens the last two nights.

Wednesday, July 22. Max. 17.5, min. 7.0 C. The rain continued until about 7 o'clock last night. Cloudy morning thickening to near rain about 11; steady light rain from about 4 p.m. to

Had a good morning diwn the track to the 2650-meter level, where I collected a long-levaed big Podocarpus - the 7th (or 8th) species of conifer for the mountain. Went thence to a small clearing in which stand two pig houses near the Pengagl-Iubuka junction. Collected there over a dozen species of weeds and introduced plants, also an odorless purple violet (a second sp. of Viola present but sterile). Mixed with cosmopolitan weeds such as Galinsoga parviflora, Stellaria media and Tagetes glandulifera, were alpine elements such as blue Cynoglossum (?), Acaena, and probably the violets.

Thursday, July 23. Max. 18.5, min. 8 C. Cloudiness lasted through last night; today almost completely overcast; not ½ hour of sun. Smart rain briefly between 4 and 5 p.m.

Took an old trail which cuts obliquely from Pengagl Creek up to Piunde-Aunde

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Creek, perhaps 3/4 mile from camp and 100 m higher. The usual scattered big conifers in the forest on the ridges. Most important gatherings were five species of tree-ferns (Cyathea). Have been leaving these until toward the end of our stay, in order to have dryer space to handle them. There is one common species in the forest (near trails, often with a second growth of crown after being topped for its fiddles, which are cooked in the stone ovens and eaten with pig), another frequent. Two big species collected today were not seen before; the delicate little species found high on the slopes on June 28 was re-collected. I know of no other species here.

We are still above the range of the palms. Only one species of Pandanus has been found in the forests. Three of Freycinetia have been seen: 1 large species of which I have a fruiting specimen today, 1 medium, 1 very small; the latter two not seen in flower or fruit.

In yesterday's gathering was a passionfruit (Passiflora) with showy big pink flowers minor corona, which grows commonly on the edges of clearings and occasionally on the open banks of Pengagl Creek up to about 3000 m. The cucumber-like yellow fruit is edible, but not well flavored. The plant is said to have been introduced into the Chimbu area during World War II, and become naturalized. It is called MONDON in Chimbu; the commonly planted P. edulis is called "FRUIT." Mondon may be a corruption of some unrecognizable name introduced with the plant.

Van still struggling, and working nights, to keep abreast of a flood of mammals trapped and being brought in by natives. Fourteen species on his table today including an Antechinus ( ) new to the collection.

Friday, July 24. Max. 16.0, min. 5.5 C. Clear, starry, moonlit night followed by a cloudless dawn. Overcast most of time after 8 a.m., but short spells of bright sun. Mist low on ridges after mid-afternoon; some rain about 4 p.m.

Hoping for a day of good visibility after the clearing of morning clouds, I climbed up the Piunde-Aunde trail to 11,000 feet (on a base reading of 9600 ft. for Pengagl Camp today). Was under cloud until about 11 o'clock; after which conditions were fairly good on the whole. Had a much better view of the forest than when I went up to Piunde-Aunde Camp on June 8 and when I came back down on June 29. Searched all the way up the slopes for Xanthomyrtus in the canopy layer. Dense topped, small-leaved Myrtaceae were among the principal dominants: white-flowered #30702 and Decaspermum 30703 at 3150 m (both with solitary flowers); Decaspermum 30682 with white flowers in trids and red stigma at 3260 m. (11,100 ft. of today), where #30681 with yellowish young leaves and very small greenish flowers was by far the most abundant tree in the forest. At 3260 m one Xanthomyrtus tree was found in the canopy. No doubt there were more, for it is very difficult to distinguish from yellow-leaved 30681. Details of forest in small notebook #1.

Saturday, July 24. Max. 17.0, min. 8,0 C. Not much sun until late afternoon; heavy cloud high on mountain early. No rain.

Last night seemed full of mailmen. About 6:30 a village native arrived with a small batch of mail which had been sent from Kundiawa via Dengalagu Mission. At 8:30 there was a commotion outside our hut, and Wak walked in escorting an AC with more mail from Kundiawa. The policeman had left Kundiawa early in the morning; a very fast trip. The first lot of mail had probably been somewhere

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on the road for a couple of weeks. ADO Mathieson advised that he will not be able to accept my invitation to visit our camp; full schedule until end of month. Seems to be trying to make a secret of something we already know -- DC Seale proposes to send picks and shovels for the new road work from Goroka on the planes which move us out on August 1st., and no doubt some white officer will be there to receive and distribute them. We will probably meet Mathieson at Keglsugl on the 1st.

Spent the day in camp, working on yesterday's big collection, etc. Boys sent out part of the morning with nets and killing bottles brought in a nice lot of butterflies including 2 or 3 spp. new to the collection. Yellow and black are the predominant colors in butterflies here.

Van, who has done nothing but prepare specimens for weeks (apart from jacking at night), spent the morning on a tour of the trapping areas, guided by John. Made flashlight photos of habitats. Three of the rare little shrew-like hydromines brought in by village natives from snares set above camp level on Piunde-Aunde Creek.

Sunday, July 26. Max. 18.5, min. 5.0 C. Overcast dawn following a clear, cold night. A day of broken cloud; thunderstorm over the Ramu Divide to the east; light rain here 5:15 - 6 p.m.

Botanized on the opposite side of the valley -- the lift to the Ramu Divide from the continuation of Pengagl Creek to the Iabuka, which I crossed by the pig bridge at 2600 m. Afterwards crossed the big stream which comes down from the Jimmi Gap; this crossing also at 2600 m. Thence climbed the slopes some distance in the hope of finding beech trees. No change in the forest as compared with our camp side of the valley. The trail much cut up by pigs. Got a fair bag of odds and ends, some of them trees I have been waiting to flower. A big-leaved fig came from the opposite side of the valley. Got back to camp at 1:45.

Monday, July 27. Max. 16.5, min. 6.0 C. Last night cloudy; gusts of wind down valley at times, rattling the canvas screen which serves as door to our hut. Rosy dawn and early morning good, but soon clouding. Unusually heavy rain between 2 and 4 p.m.; the creek running muddy.

Guided by John, over one of his cut trails in an approximately NNW direction, I went over to Iumbaga (or Umbaga) Creek, the next stream beyond the Piunde-Aunde and much bigger than that stream. Has a moderate fall, bouldery and rocky bed, and is about 10 yards wide. The steep banks are entirely vegetated by seral forest growths except for an occasional break by a landslide revealing a very deep gray sandy soil, very different from the bouldery (glacial?) profile of the cut banks of the Pengagl. The seral growths largely two prickly species of Saurauia. The rocks of the stream, or the larger ones, matted with moss. Hard, slippery travel over the rocks, and, grabbing for support, one usually caught hold of one of the prickly saurauias. A big Marattia and widespread big palmatisect Pteris prominent as ferns. But botanizing was poor indeed. The bestthing for the morning was immature fruiting material of the common Papua-cedrus of this locality.

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Papuacedrus grows to large size and provides the bark which to some extent at least is used for house walls by the local Chimbus. The general procedure is to cut a tree down to get the bark, which is stripped in sections over the length of the trunk. Sometimes the bark is removed from the base of a tree as high as a man can reach with an axe, and as no strip of covered cambium is left to feed sap to the tree, it dies. One finds dead Papuacedrus trees, mostly fine big clear-boled specimens, all throughthe forest of the ridges.

Another very rare mammal - Macrouromys - came to Van's table today, trapped in Iumbaga Creek by John, in a steel set.

Tuesday, July 28. Max. 1.0, min. 6.5 C. Clear night; thin high cloud at dawn; heavy overcast by 8 a.m.; drizzling rain about 11 on and off to mid afternoon. Lousy weather for field work. The forests very wet (moss saturated on trees and ground), visibility very poor.

Botanized up Pengagl Creek to where the Piunde-Aunde trail starts up the mountain side, and from there followed the creek a short distance upstream to a slumping area of about an acre on the high south bank. The earth movement here is old. At the head of the slump area much timber lies buried to a depth of several feet - one log over 1 ft. in diameter, brown and crumbling with age. A major movement in this slump area could dam the creek at any time, and cause another devastating flood with the bursting of the dam.

Made a circuit from the head of the slump area by a faint trail through very mossy, rather low forest, back to the creeks to where the mountain road begins. Trees largely Podocarpus papuanus and Decaspermum; short-leaved Quintinia of July 24 and a Timonius common. In this forest was encountered as a ground plant a very fragrant Piper seen elsewhere only in the subalpine forest of the lower part of Piunde-Aunde Valley. A red Rhododendron with leaves brown floccose underneath was abundant on the unstable ground of the slump area; a coarse Carex with cylindrical spikes, Anaphalis spp. 2 (lorentzii and edelweiss with green upper leaf surface), Epilobium etc. of the alpine; also the common Equisetum of open ground.

Wednesday, July 29. Max. 16, min. 8.0 C. Threatening early, following a dark cloudy night; clearing by about 9 a.m.; scattered clouds and hot sun thereafter; no rain.

The weather looked doubtful when I set out at 8 o'clock to work lower levels than hitherto touched on the slopes. Tracks very muddy and stinking of pigs down to near the top end of Keglsugl strip. Boys, having been told this would be the last day in the field for this camp, in high spirits. "Pig workem this road, now puttem scent"; "Bineby Friday you me takem cargo place balus, some man, mary fall down, arse belong him kaikai ground," etc. Went to the lower end of the air strip, then down a small track through tall pitpit, then sweet potato gardens and scattered homesteads to the main creek 400-500 ft. below the strip. The first homestead we struck had an old-established look. A planted Nothofagus tree was fully 60 ft. high. The owner, an old man, was picking short grass from under the shade of the trees round his house when I came upon him. Clad in an old great coat, perhaps acquired during World War II and worn constantly and not washed since then, he led me through the long-grass fallow below him to the river.

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A bridge of 4 small logs there, on stone abutments. No track up the rocky bed of the stream. Old man took me to the next land owner. Neither knew English or pidgin. The neighbor, also old, was sprightly and intelligent. Seeing my interest in plants, he pointed out this and that and, gave me native names and, by signs, I was able to find out some uses of the plants. Made my way back up to the strip, then by a side track to the main trail leading back to camp, arriving there at 1 p.m. A good lot of plants, the most interesting being trees of cultivation: Nothofagus (grown because they "like it"), paper mulberry for bark fiber, Kingiodendron for its edible young leaves, eaten roasted with pig at feasts, etc.

John accompanied me to the bottom end of the air strip, then, with Tobram as guide, set out for the Bundi Gap. He returned to camp at 6:30. Reported magnificent forests of Nothofagus between 8900 and 10,250 ft. (uncorrected) on gentle slopes in the gap. On a badly drained patch of land on the trail the beech gave way to other, lower and smaller trees. The biggest trees in the beech forest estimated at 160 in. in diameter above the spur buttresses, and about 150 ft. high. The planted trees of the area I visited this morning are said to have originated in Bundi Gap, but leaf specimens collected by John appear to belong to a different species. The top of the gap, at 9500 feet (uncorrected) reached in 1½ hours from Keglsugl strip.

Thursday, July 30. Max. 18, min. 5.0 C. Threatening early, but fine sunny day; no rain.

Both Van and I working on fresh specimens in hand, and on packing collections and gear. Final botanical figures are 606 numbers for the camp; 1010 for the mountain. This I consider a very satisfactory collection. It will put Mt. Wilhelm on the botanical map. The biggest collection before this, that of Hoogland & Pullen, ran to about 150-160 numbers. Have but 6 boxes of insects plus a few bottles of spiders for the two mountain camps. The weather in general has not been favorable for this kind of collecting, and no doubt the fauna is pretty thin at this altitudes. Had good catches at the light trap on very few nights. Botanical collecting has been made difficult by very poor visibility in the forests, due to the almost constantly cloudy weather, but rain has caused the loss of very few hours in the field. Temperatures have been such that my boys have worn sweaters every day in the field. The only troublesome pests have been "Kamikazi flies" which go mostly for one's forehead and raise welts which last a few hours, and sometimes sandflies, especially along the open bed of the creek. No mites or leeches troublesome to humans. Occasionally at about dawn I heard big mosquitos buzzing in our hut, but they never did any biting. I listened often for the "six o'clock crickets" (cicadas). They sounded off regualrly as the day grew light -- about 6:15 - 6:20 -- but were never heard in the evening.

Had today from Demkana, owner of the mountain, a complaint about the Papuacedrus tree I had cut down two or three days ago. The tree had been planted by his father, who was killed later in a fight. Demkana much upset about the tree being cut. Had creid about it, but was not cross with me. As witness, he brought me a stick insect later in the day. Also showed me three seeds he was going to plant. Seeds of Papuacedrus, he said. The seeds belonged to three different plants, only one of them coniferous, and none Papuacedrus.

Friday, July 31. Max. 19.5, min. 5.0 C. Another good sunny day for our move down to the air strip in Keglsugl. Had about 100% more carriers than we needed -- men, women, children -- for the short trip from camp. I left at the end of the line at 8:45 and reached the strip about half an hour later.

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Had a careful weighing of our cargo at the strip. We have 42 pounds over the 3000 pounds we are allowed for two charter flights. This after giving two drums of Kerosene to the Mission. If the pilot tomorrow insists on the 1500-pound limit for payload, we will dump the few surplus items of foodstuffs we have left.

Have engaged as a sixth hand the Chimbu Tobram, who has been employed as an extra man at both our Mt. Wilhelm camps. A good hunter and trapper, he will be in the mammal team, replacing Hetanin, who will be #2 cook. This extra employee accounts for our being a bit over weight for the flights. The heaviest man of the six we now have on the payroll, he weighs 126 lbs.

Saturday, August 1. The Mt. Wilhelm phase of our work was successfully concluded by two Otter flights (Capt. Bill Taylor) from Keglsugl and the safe deposit of our collections and gear in the government stores at Goroka. Had perfect weather conditions for the flights. Van and I and four boys came out on the first flight, John, the cook and Tobram on the second. Our take-off was at 8:10. The whole operation was conluded by the middle of the morning.

At the Goroka airport to meet us were Joe Collins with our Land Rover, Ken James and Bill Seale. And, standing with Joe, I was surprised to see Russ Peterson, in field clothing, and looking rather heavy for a man hwo had been in the field for three months. The work of the Spalding-Peterson Expedition finished in North Queensland, he and Lionel Evennett (transport man) had flown to Port Moresby from Cairns and on to Goroka en route to Nondugl to visit Shaw-Mayer. They are waiting in Goroka for the arrival of Phil Spalding and their herps man ( ) on Tuesday morning. Starting their work in Queensland in the Cairns area, they went through (by Land Rover) Ravenshoe, Mt. Garnet, Einasleigh, Forsayth and Georgetown to Normanton, thence to the lower Mitchell River, then west through Georgetown to Redbank Copper Mine, 15-20 miles west of Wollogorang in the Northern Territory. Collected 45 species of mammals, but were restricted to six specimens per species by an official (McDougall) of the Department of Agriculture in Brisbane. This restriction allegedly required under a new (1952) fauna protection act. This act said to be a direct result of improper doings by Archbold Expeditions. The offending actions were on the part of George and Geoff Tate, about 1949 or 1950, who arranged with Jack Roberts of Shipton's Flat, near Cooktown, to make mammal collections supplementary to ours of 1948. This arrangement was made without application for a collecting permit, and the first consignment of skins was seized and held for a time in Cairns. I was at the Florida Station and had nothing to do with the arrangements. But as leader of our Cape York expedition in 1948 I am thought to have been behind it all, and I get the blame. Will try to do something about it while in Australia after this present trip is over.

Again Van and I are enjoying the hospitality of Ken James, manager of Buntings in Goroka. Goroka has a splendid dry season climate, but at the 5000-ft. altitude the air seems heavy after our two months at over 9000 feet.

Peterson and Evennett have traps and guns with them. We are helping them with the Land Rover, and John as guide.

Summary of Van's mammal collection from tthe two Mt. Wilhelm camps: collection numbefs 832 (including 79 skulls only); 564 numbers from Pengagl Creek Camp. Number of species 35. Rodents included Anisomys 9 specimens, Hyomys 2, Lorentzomys 7, Parahydromys 4, Crossomys 1, Pseudohydromys 7, Neohydromys 9,

Keglsugl-Goroka

Pogonomelomys 28, Hydromys 1, Macruromys 1. Marsupials included: Eudromicia 28 specimens, Petaurus tafa 18, Peroryctes 22, Antechinus wilhelminae? 47, Antechinus sp. 1. Bats included: Pipistrellus, Nyctophilus 6 specimens, Syconycteris sp., Miniopterus sp. The herps collection from the mountain numbered 775; lizards (c. 4 spp.) 142, frogs 633 (c. 8-10 spp.). There were 20 species of rodents, 11 of marsupials, 4 of bats. The mammal collection from the top camp included nothing which was not afterwards taken from the #2 camp.

Sunday, August 2. The fine SE weather of the past 3 or 4 days continues. Mornings and evenings in Goroka the air becomes quite cool. I got a touch of sunburn yesterday. Temperature now (5:40 p.m.) is 68 F.

Some of the morning spent watching the local polocrosse team at practice at the police training depot, North Goroka. Correspondence the rest of the day. We plan to leave for Kotuni, south slopes of Mt. Otto, Tuesday morning.

Goroka-Kotuni

Monday, Aug. 3: Reorganized collecting supplies. Sent our Mt. Wilhelm collections to the Department of Forests in Lae for storage. John Womersley extremely helpful in this. Late last week his assistant, Ted Henty, was sent to the Mt. Hagen area to collect material of Caldesia (Alisma) for drug research. On his return to Lae today he took charge of our collections and carried them (about 370 lbs.) on the plane as excess baggage on government warrant.

To the Seale's for dinner in the evening. Ken James and a Dr. Ken also guests. The latter wears a brushy moustache, is interested in botany, and is a nervous and rather sissy type. A very pleasant evening.

Tuesday, August 4. Arrived in Goroka by direct flight from Port Moresby this a.m. Phil Spalding, his son Phil, and Bill Hosmer herpetologist to the party. Their plane stopped about 3/4 hour, then took them on to Nondugl. They will stay there for several days to visit Fred Shaw Mayer at the Hallstrom Wildlife Farm. Rus Peterson and Lionel went with them from Goroka and will drive (as guests of young Michael Collins) to Dan Leahy senior's place to examine bat caves in the limestone (this at Mt. Hagen).

With stores for two weeks, we left in the Land Rover after lunch for Kotuni Sawmill on the south slopes of Mt. Otto. The mill at a reputed 7200 feet; owned now by Joe and Rod Collins, and presently in charge of young Jim Leahy. On the way out we called in to see Jim Leahy, Sr., the pioneer settler of the Goroka district, who has 50 acres of bearing coffee, does mixed afrming, and also has cattle and a butchering businees. Pleasant but rather stolid grayhaired man of about 50. Has done very well, apparently. Is getting well over a ton per acre from his coffee; price now 4/- per pound for fair average quality, guaranteed by merchants in Australia. Speaks highly of a man named Gota from Hawaii (Japanese) who was hired by the New Guinea banks to advise on coffee culture about two years ago. Has followed Gota's advice and done well. Coffee has to be fertilized on this soil. Some growers don't do this, prune properly, etc. and their harvest is round about ½ ton per acre.

Wednesday, August 5. We had good clear, or only partly cloudy, weather in the broad Asaro Valley. Up here on Mt. Otto we are more in the cloud zone, and there has been very little sun today. Temperature at the house at 1 p.m. was 64 F.

Started my botanizing with a visit to the head of the race which supplies water for the Pelton wheel which drives the sawmill. The intake is half a mile or more up the creek -- the Collins group does not bother much about place names, and I can not as yet get the name of the stream. Country pretty much disturbed by logging operations, but should offer fair collecting. Recognized an oak with grayish young leaves. The forest of the lower slopes of the creek ravine is rain forest to me. Some definite low altitude elements present (e.g. Randia). Did well on orchids, of which I must have gathered 8-10 species in the morning. The creek is called IAMAHAGI.

Have decided to disregard our aneroid, which has been reading 7650-7700 ft. here, and call the camp altitude 2200 m. The elevation at the old house, some 50 ft. below the present one and on the level of the mill, is said to be 7200 ft. by a Forest Department aneroid.

Goroka-Kotuni

Thursday, August 6. Weather much as yesterday, with the addition of a smart, brief shower about 5 p.m.

Up the slopes again, this time to an elevation of 2340 m by corrected aneroid. Forest too badly wrecked for me to get any idea of what the canopy trees may have been in most of it. One relic big tree was of the myrtaceous genus with small leaves, small green flowers, and one-seeded fleshy fruits which was prominent on Mt. Wilhelm.

This timber operation here would be called cracker-style in Florida, and it is a good example of the cut-out and get-out philosophy which perhaps has to be in a primitive country just being opened up. Everything big enough to cut has been cut, regardless of the quality of the timber..The lease of 3500-4000 acres has just about been cut out, as regards timber profitable to exploit, in about 8 years of operation. Jim Leahy Sr. began the enterprise; sold it to his nephews Joe, Rod and John Collins about 6 years ago. John sold his share to his brothers perhaps 2-3 years ago. Basic plant in the mill is a Canadian bench; there are two smaller saws. There is no roof over the mill (this is a wet climate); the whole show is roughly planned and ill kept. The only level ground is around the saws. No proper stacking is done; the lumber is taken down to Goroka by truck as soon as sawn. Waste lies over the place. Grubs must be in it, for the whole dump is actively rooted by pigs around the edges. Most of the present waste is consumed in the cooking fires of the many natives employed. Payroll now about 160 including contract gangs which bring in the logs. Formerly the logs were brought in by bulldozers, but this no longer pays. Natives drag them by ropes, to the accompaniment of much noise, and shoot them down the mountain sides. The operation extends to over 9000 ft. on the slopes. Royalty paid to government is sixpence per 100 super feet for hardwoods, tenpence for softwoods. Selling price in Goroka is a flat rate of seven pounds per hundred, eight pounds per 100 dressed. Labor is fed on sweet potatoes and a weekly issue of canned meat. Daily ration 8 lbs of sweet potatoes; bought in the lower part of the Kotuni Valley at ½ penny per pound and carried up on the returning timber truck.

Van has had a good start. Natives have brought in a Phascolosorex; traps this morning yielded a Pseudohydromys, 3 Melomys sp., and the inevitable Rattus niobe. Locals have brought in numerous frogs and odd snakes and lizards.

Having some anxiety of late about my throat. The strep condition with which I left the U.S. was finally subdued by antibiotics but not cured, apparently. A minor flare-up began during our last week on Pengagl Creek, and became worse. For several days now I have been dosing myself with 1,200,000 units of penicillin and the condition seems to be improving. Don't feel much like strenuous field work.

Friday, August 7. Considerable amount of rain in the early hours of last night. Increased sunshine today. No rain to 6 p.m.

Guided by TIKI, a Mt. Hagen boss boy of about 6 years service at the sawmill, I climbed to the crest of a spur towards the head of Iamahagi Stream to examine an occurrence of beech forest which begins at 8650 ft. (taking the sawmill altitude as 7200 ft.) and continued to my stopping point at 8800 ft. Beech forest is always impressive. Here the Nothofagus was practically sole dominant in an open to scattered stand of big, straight trees with rough dark gray bark and stubby, heavy limbs very heavily laden with cushioned moss, and epiphytic ferns and orchids. The showy tubular red Rhododendron of the Pengagl country was there, too, as a high epiphyte, also an almost tree-sized Vaccinium in a profusion of red blooms.

Gorkha-Kotung

Thursday, August 6. Weather much as yesterday, with the addition of a short, brief shower about 5 p.m.

Up this slope again, this time to an elevation of 2940 m by corrected aneroid. Forest too badly wrecked for us to get any idea of what the canopy trees may have been in most of it. One really big tree was of the myrtaceous genus with small leaves, small green flowers, and one-seeded fleshy fruits which was prominent on ridge. Willdenow.

This timber operation here would be called creaming in Florida, and it is a good example of the cut-out and get-out philosophy which perhaps has to be in a productive country that has been opened up. Investment big enough to cut has been cut, regardless of the quality of the timber. The issue of 1900-2000 m has just about been cut out, as it remains timber practically exploit. In about 5 years of operation. Mr. Hanley, Mr. Perry the enterprises, not it to his partners too, but and John Collins about 3 years ago. John sold his share to his brothers perhaps 2-3 years ago. Basic plant in the mill is a Swedish bench; there are two smaller saws. There is no roof over the mill (this is a wet climate); the whole show is roughly planned and ill kept. The only level ground is around the saws. No proper stacking is done; the lumber is taken down to Gorkha by truck as soon as sawn. Waste lies over the place. Grubs must be in it, for the whole area is actively rooted by pigs around the edges. Most of the present waste is concerned in the cooling lines of the many motives employed. Perhaps now about 100 including contract cars which bring in the logs. Formerly the logs were brought in by railroad but this no longer pays. Motives drag them by ropes to the accompaniment of much noise, and about time from the mountain sides. The operation extends to over 2000 m, on the slopes. Formerly paid to government 1/2 rupee for 100 cubic feet for hardwoods, twopence for softwoods. Selling price in Gorkha is a flat rate of seven rupees per hundred, eight rupees per 100 dressed. Labor is led on sweet potatoes, bought in the lower part of the Kosi Valley at a penny a lb or sweet potatoes; bought in the lower part of the Kosi Valley at a penny per pound and carried up on the returning timber cruck.

Yum has had a good start. Natives have brought in a Lycodonomyia; traps this morning yielded a Pseudohydromyia, 2 Helcomyia sp., and the inevitable Culiseta alaska. Locals have brought in numerous frogs and odd snakes and lizards.

Having some anxiety of late about my throat, the strep condition with which I left the B.C. was finally combated by antibiotics but not cured, apparently. Minor flare-up began during our last week on Langtang Gorge, and became worse for several days now. I have been dosing myself with 1,800,000 units of penicillin and the conditions seems to be improving. Don't feel much like strenuous field work.

Friday, August 7. Considerable amount of rain in the early hours of last night. Increased sunshine today. Warmer to 6 p.m.

Guided by TIKI, a Mr. Hagen boss boy of about 6 years service at the sawmill, I climbed to the crest of a spur towards the head of Tamakoshi Stream to examine an occurrence of beech forest which begins at 2650 m. (taking the sawmill altitude as 1200 ft.) and continued to my stopping point at 2800 m. Beech forest is always impressive. Here the Lithocarpus was practically sole dominant in an open to scattered stand of big, straight trees with rough dark gray bark and stubby, heavy limbs very heavily laden with sweet-smelling moss, and sulphytic ferns and orchids. The showy tubular red Rhododendron of the forest country was there, too, as a high epiphyte, also an almost tree-sized Vaccinium in a profusion of red blooms.

Kotuni

The trees estimated at generally a bit over 100 ft. high; diameter up to 5 feet above thick spur buttresses at the base. The tree trunks carry little moss, but there is much on the ground. Much mossy fallen timber lay on the ground. This, with an abundance of slender scrambling bamboo and woody undergrowth of slender, mainly small-leaved little trees and tall shrubs, made getting about on the rather narrow ridge crest no easy thing. (Further details in small notebook #1).

Satanellus, a second mammal new to the collection for the trip; brought in by a native. Immature, lean, and of an unusual rather sandy brown.

Saturday, August 8. Day almost completely overcast; very heavy rain between 5 & 6 p.m.

Saturday morning at noon sees the end of work for the week at the sawmill. The boys are issued their weekly 2 tins of meat, 2 sticks of tobacco, and sheet of newspaper after lunch. Today there was the additional activity of the bursting or blowing out of a valve which controls the water which works an auxiliary Pelton wheel which generated electricity for lighting the establishment. The light plant was out of action until last night, when the mended generator was returned from Goroka. There will be no more electricity until the valve can be mended or replaced. Another example of makeshift, poorly maintained equipment.

John and our host, Jim Leahy Jr., left in the middle of the rain for Goroka and the Saturday night flicks.

Sunday, August 9. A little more sun than yesterday, but generally overcast. Smart shower between 1 and 2 p.m.

Botanized along the creek close to camp. Chiefly second growth elements. A rather surprising number of plants of higher altitudes descend the narrow ravine of the Iamahagi. The long-leaved Coprosma of Pengagl included in today's collection. Late in the day, John and Jim having returned from Goroka, and fixed the light plant water valve by welding in the stem or screw of a bench vise, we drove along the former, higher altitude, road to Goroka to inspect logging operations. Drove a mile or more to the former site of the sawmill, then about ¼ mile to where the the log-hauling truck had broken down and dumped its logs all over the road. A red-flowered balsam attracted attention along the roadside, and was collected. Also found a single plant of a Macropiper very different from a species abundant in the young forest second growths of the area.

During the weekend two parties drove up from Goroka to fish in the Iamahagi for rainbow trout. Two hite men in each party. The first, on Saturday, caught but one fish. Today's anglers are said to have departed with either 14 or forty. The sawmill introduced the trout some years ago. A 4½-pounder has been caught in the creek. The water said to be now overstocked, and the fish not in good condition.

Monday, August 10. The day promised well early, but turned out almost constantly overcast, and rain fell at intervals between 3 and 5:30/p.m.

Stayed in camp, working on collections and writing letters, and sent my two boys, with John as guide, to collect high on Mt. Otto. John had climbed the mountain some years ago. Today he made the altitude 11,800 ft. with my aneroid. The height on the most recent map (Territory of Papua and New Guinea, 1954) is 11,613 feet. The aneroid read 7700 ft. at 8 a.m. in camp (it has been 7700-7800 since we have been here). I'am inclined to think now that, instead of reading about 400 feet too high as suspected, it is only about 200 too high. The mountain

Autumn

The trees averaged about generally a bit over 100 ft. high; diameter up to 3 feet above which some buttresses at the base. No tree trunks carry little moss, but there is much on the ground. Much mossy fallen timber lay on the ground. This, with an abundance of slender scrambling bamboo and woody undergrowth of slender, mainly small-leaved little trees and tall shrubs, made pushing about on the rather narrow ridge great no easy thing. (Further details in small notebook V.).

Botanizing. A second manual new to the collection for the trip: brought in by a native. Immature, lean, and of an unusual rather sandy brown.

Saturday, August 8. Day almost completely overcast; very heavy rain between 5 & 6 p.m.

Saturday morning at noon saw the end of work for the week at the sawmill. The boys are issued ration weekly 2 tins of meat, 2 sticks of tobacco, and sheet of newspaper after lunch. Today there was the additional activity of the breaking or slowing out of a valve which controls the water which works an auxiliary Pelton wheel-dynamo generated electricity for lighting the establishment. The light-plant was out of action until last night, when the mental premature was returned from Corona. There will be no more electricity until the valve can be mended or replaced. Another example of makeshift, poorly maintained equipment.

John and our boys, the lazy ones, left in the middle of the rain for Corona and the Saturday night lights.

Sunday, August 9. A little more sun than yesterday, but generally overcast. Heavy shower between 1 and 2 p.m.

Botanized along the creek close to camp. Mostly second growth climbers. A rather surprising number of plants of higher altitudes besides the mossy ravine of the lamanai. The long-leaved Geranium of Tamaca included in bolsa collection. Late in the day, John and his boys having returned from Corona, and fixed the light plant water valve by welding in the stem on screw of a bench vise, we drove down the former higher altitude, road to Corona to inspect log the operations. Drove a mile or more to the former site of the sawmill, then about a mile in where the log-hauling truck had broken down and damaged its logs all over the road. A red-flowered Salvia attracted attention along the roadside, and was collected. Also found a single plant of a Monochaetum very different from a specie abundant in Dangriga. Great second growths of the area.

During the weekend two people drove up from Belize to fish in the Lamanai for rainbow trout. The bite was in fact nearly. The first, the Sunday, caught but one fish. Today's anglers are said to have demanded with either it or fight. The sawmill influences this trout area yearly. A sawmill has been sought in this creek. The water said to be now overstocked, and the fish not in good condition.

Monday, August 10. Another overcast well nearly, but turned out above cold, mostly overcast. Big rain fell at Indreville between 3 and 5:30 p.m.

Sayer in camp, working on collections and writing letters, and sent by two boys, with John as guide, to collect birds on Mt. Otto. John had climbed the mountain some years ago. Tony he made the altitude 11,800 ft. with my aneroid. The height on the work recent map (Department of Forests and New Guinea, 1954) is 11,613 feet. The aneroid read 7700 ft. at 8 a.m. in camp (it has been 7700-7800 since we have been here). Alta inclined to think now that, instead of roughly about 400 feet too high as suggested, it is only about 200 too high. The mountain

party left camp at 8:30 a.m. and returned, sopping wet and cold to the bone, at 5:50 p.m. They brought a big collection of plants to be examined tomorrow. John too tired tonight to give much information on the mountain.

Tuesday, August 11. One of those rare, sunny, bright days; the only decent weather since we arrived at this camp. Some high cloud; no rain.

Worked all day on yesterday's collection of plants from high on Mt. Otto. Have 52 numbers catalogued and some remain to be done. Most of the plants are from the 3040 - 3300 m levels of a narrow leading spur which carries scrubby growths (at those levels) on up to about 200 feet of the summit. The party worked upwards. They were close to the summit grasslands when rain began. Therefore little was collected at the upper levels. There are a few alpines including a small red Vaccinium strange to me. Hardly anything definitely sub-alpine. Xanthomyrtus and a Decaspermum are abundant (dominant?) in the scrub of the spur. If there is a sub-alpine zone of vegetation it is perhaps in a narrow band between the Xanthomyrtus-Decaspermum community and the alpine grass. John estimates about 60 acres of grassland on top. An alpine treefern there was not collected. Nor were any conifers from any level. Three native huts on the scrubby spur - none habitable. The most striking plant collected was a spectacular dark pink Rhododendron of peculiar shade which occurred as a tall, profuse-flowering shrub at 3260 m. The collection raises more questions on altitudinal distribution than it answers. The same team will do the ascent again when the weather is favorable. The 3-hour climb of over 4000 feet, and about equal return time on the very steep slopes, would be too much for me to prudently attempt in a day.

Last night was still and moist after the rain. Had a very good catch of moths at the light trap, and from the inside and outside walls of the house. Numbers perhaps not as many as on the best nights at Kaindi, but many of the moths are of extraordinary beauty. A few very big ones coming in. In groups other than moths the variety and quantity are poor. Beetles are notably scarce.

Wednesday, August 12. Another day almost as perfect as yesterday. Last night was cloudy. Tonight is clear, with a keen breeze down the valley, and for the first time in almost a week there is hardly an insect flying.

There was no audible cheer this morning when I told my boys to prepare for another trip up the mountain with John. They left camp about 8 a.m. and returned at 6:15 p.m. Finishing work on plants soon after lunch, I walked down the road to view the top of Mt. Otto, and as a result have an understanding of the vegetation of the uppermost few hundred feet. The slopes below that are hidden by fronting ridges. Details in small notebook.

Arrived in camp this afternoon young Michael Collins, about 22-year old brother of John. A bright and most profane young man. He is looking after John's coffee property on the Baiyer River while John is with us. Goes out there perhaps once a month to check on the plantation and trade stores. Has just returned with a report.

There is also a report on the Spalding-Peterson Expedition. Michael drove Rus and Lionel Evennet from Nondugl to Dan Leahy's place near Mt. Hagen to

Journal

party left camp at 8:30 a.m. and returned, soaking wet and cold to the bone, at 5:30 p.m. They brought a big collection of plants to be examined tomorrow. John has stayed tonight to give much information on the mountain.

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Worked all day on yesterday's collection of plants from high on Mt. Otto. Have 32 numbers catalogued and some remain to be done. Most of the plants are from the 3000 - 3500 m level (some levels) on up to about 200 feet of the summit. The party worked upwards. They were close to the summit crevasses when rain began. Therefore little was collected at the upper levels. There are a few alpines including a small red scabious strongly so me. Hardly anything definitely sub-alpine. Xanthoxylum and a Lecanemum are abundant (dominant?) in the scrub of the north. It there is a sub-alpine zone of vegetation it is perhaps in a narrow band between the Xanthoxylum-Lecanemum community and the alpine grass. John estimates about 60 acres of grassland on top. No alpine treeline there was not collected. Nor were any conifers from any level. Three native lupes on the scrubby spur - none palatable. The most startling plant collected was a spectacular dark pink rhododendron of peculiar shape which occurred as a tall, prickly-looking shrub at 3200 m. The collection raises more questions on altitudinal distribution than it answers. The same team will do the summit again when the weather is favorable. The 3-hour climb of over 4000 feet, and about equal return time on the very steep slopes, would be too much for me to profitably attempt in a day.

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There was no audible chase this morning when I told my boys to remove for another trip up the mountain with John. They left camp about 6 a.m. and returned at 6:5 p.m. Finishing collection plants soon after lunch, I walked down the road to view the top of Mt. Otto, and as a result had an understanding of the vegetation of the uppermost few hundred feet. The slopes below that are hidden by crowding ridges. Details in small notebook.

Arrived in camp this afternoon young Michael Collins, about 22-year old brother of John. A bright and neat creature young man. He is looking after Joan's coffee property on the Naiyer River while John is with us. Does out there perhaps once a month to check on the plantation and trade stores. Has just returned with a report.

There is also a report on the Spalding-Petersen encounter. Michael drove Ann and Lionel Lyonnet from Nandgi to Ian Lacey's place near Mt. Elgon to

collect in bat caves in the limestone. From Leahy's place to the caves was a hard walk of 3 hours. Rus complained of a stomach ache and stayed at home. Michael and Lionel did the bat hunting. They shot about 25 Dobsonia and five small bats. Spalding reported to be going haywire with his money at Nondugl. Handing out, against Rus' protests, pound notes to natives who bring ina few rats. Shaw Mayer, whom they went to Nondugl to see, apparently was not there.

Van's numbers (70-80) for this camp are not large, but so far he has 22 species. The best of all came in today, caught in the roof of one of the boy houses: the small bat Murina, Van thinks. The genus is not known from closer than the East Indies, where very few have been collected.

Thursday, August 13. Somewhat cloudy, but the third consecutive day of good weather, without rain. Temperature at my window this a.m. was 48 F -- the lowest observed here. The maximum and minimum thermometers have not been set up in this artificial environment.

Whole day spent on the collections made on the mountain yesterday. Have 46 numbers prepared and a few still to do. These plants from about the top of the mountain are being given "L.J. Brass and J.D. Collins" numbers, beginning with #30992. John and the boys spent three hours about the summit yesterday (reached in 3½ hours from camp), but their collection no doubt is far from being complete. It gives, however, an idea of the gross composition of the alpine grasslands and the subalpine forests. Subalpine forests occur, so far as I can make out, between about 3380 and 3460m. (11,100 and 11,360 ft.), the 3460 m. point being in a dip between rounded double peaks on the south side of the mountain. Viewed from my vantage points of yesterday (¼ to ½ mile down the road towards Goroka), a gully strip of subalpine forest, recognizable by emergent Podocarpus compactus trees, extended upwards to this dip or notch, and downwards until screened by a fronting ridge. Clumps of the subalpine would appear to reach higher on the terminating north peak, which is about 100 feet higher than the notched peak and separated by a small grassy valley. P. compactus and another emergent Podocarpus (like P. brassii) occur also on Mt. Wilhelm, as do a few low canopy trees or shrubs (only border plants were collected, apart from the two conifers). But the bulk of the subalpine forest may, on proper examination, prove rather different from that of Wilhelm.

The alpine grasslands are heavily grazed and eaten down by "Kapula" (cuscus) according to my boys, wallabies according to John. The droppings described by John as about 3/4 inch long and 3/8 inch diameter and of oval shape. Michael Leahy, who has climbed the mountain with the past two years, remembered the grass as about knee-high and in a dense stand. Now the big-clump dominants (2 Deschampsia (?) spp.) are scattered, and, say my boys, who have botanized the Mt. Wilhelm grasslands pretty throoughly, the mammals have eaten out most of the small grasses and herbs.

Young Jim Leahy has produced a small photograph which he took on the mountain in July, 1955. It shows clearly the upper limit of the subalpine forest in the notch of the double south peak (about 11,500 ft.); emergent Podocarpus compactus in the forest; big cushions of Astelia on the alpine grassland, also what appears to be large clumps of Coprosma. These three plants were collected by our party.

Friday, August 14. Again a lot of hot sun. Clouds drifting from the NW in the afternoon soon settled on the mountains behind us down to about 8500 ft. A little drizzle of rain after dark.

August

collect in bat caves in the Jiaoshone. From Lenny's place to the cave was a hard walk of 3 hours. We complained of a sunken ankle and stayed at home. Michael and Lionel did the bat hunting. They shot about 25 Rodentia and five small bats. Operation reported to be going haywire with mercury at Mondavi. Hunting out, against Lee's protests, found notes to natives who bring me few rats. Knew Mayer, when they went to Kunlun I to see, apparently was not there.

Van's muskrats (70-80) for this camp are not large, out so far he has 22 species. The best of all came in today, caught in the roof of one of the boy houses: like small bat Myotis, Van thinks. The genus is not known from closer than the east Indies. These very few have been collected.

Thursday, August 12. Somewhat cloudy, but the third consecutive day of good weather, without rain. Temperature at my window this a.m. was 44° -- the lowest observed here. The maximum and minimum thermometers have not been set up in this artificial environment.

Late day spent on the collections made on the mountain yesterday. Have 46 numbers prepared and a few still to do. These plants from about the top of the mountain are being given "A." nos. and 6.". Collins "numbers" beginning with #20922. Joan and the boys spent three hours about the mammal yesterday (reached in 3½ hours from camp). At their collection no sound is far from being complete. It gives, however, an idea of the gross composition of the alpine grassland and the underlying forests. Subalpine forests occur, so far as I can make out, between about 3700 and 4000m. (11,100 and 11,350 ft.), the 3400 m. point being in a dip between rounded double peaks on the south side of the mountain. Viewed from my vantage points of yesterday (½ to ¾ mile down the road towards Chengtu), a small strip of subalpine forest, recognizable by emergent Tsuga yunnanensis coniferous trees, ran near upwards to this dip or notch, and downwards until hemmed by a fringing ridge. Climbs of the subalpine would appear to reach higher on the terminating north peak, which is about 100 feet higher than the notched peak and separated by a small grassy valley. T. yunnanensis and another emergent Tsuga (like T. dumosa) occur also on it, although, as do a few low canopy trees or shrubs (only Sorbus plants were collected, some from the two conifers). But the walk of the subalpine forest may, on proper examination, prove rather different from that of Wilson.

The alpine grasslands are heavily grazed and eaten down by Yak (cattle) according to my boys, wallahs according to John. The dropping described by John as about 1½ inch long and 3/8 inch diameter and of oval shape. Michael Lesly, who has climbed the mountain with the past two years, remembered the grass as about knee-high and in a dense stand. Now the six-column Gentiana (2 Dasystemata (?) spp.) are scattered and, say my boys, who have botanized the mt. Wilson grasslands probably throughout, the marmots have eaten out most of the small grasses and herbs.

Young Jin Lesly has produced a small photograph which he took on the mountain in July, 1955. It shows clearly the upper limit of the subalpine forest on the north of the double-peak (about 11,500 ft.); emergent Tsuga yunnanensis in the forest; big conifers of Abies on the alpine grassland. Also that appears to be large clumps of Lonicera. These three plants were collected by our party.

Friday, August 13. Rain a lot of that am. Clouds drifting from the SW in the afternoon soon settled on the mountains behind us down to about 8500 ft. A little drizzle of rain after dark.

Kotuni

Had John drive me about 1½ miles along the old (high level) Goroka road. The southernmost limit of logging on the Kotuni lease is here, at 100 ft. greater elevation than the sawmill. Followed a very steep logging road, corduroyed in places, up the slopes another c. 500 ft. The road ended there in undisturbed forest which probably should be called mixed rain forest. Saw no canopy tree in flower or fruit. A little lower on the slopes were what looked like two species of oaks, one with grayish leaves, the other with brown young leaves. John tells me that from the road level up the middle slopes (to 8000 ft. or more) two species of oaks were cut in great quantity in the early stages of exploitation of the lease and were the principal trees of these levels. Exploitation has been very thorough - destructive is a better word. Not enough is left on the middle slopes to indicate what the forest may have been. Most striking feature now are very numerous relic treeferns of large size (#31059).

The effects of disturbance by lumbering is doubtless more severe at these fairly high altitudes than on the sweltering coasts of the country. The sun has greater drying powers here. Damage to the forests is therefore more permanent. Regrowths seem much slower to establish themselves than on the lowlands.

Saturday, August 15. A thick mist settled in the valley sometime during the night and did not clear off until late in the morning. Steady rain began around 2 o'clock and at 6:15 is still falling (thunder behind Mt. Otto). We hear that very heavy rains have fallen (yesterday?) in the Wahgi Valley and that all air strips are closed to traffic.

Drove down the road to 900 ft. below camp (6900 ft. on today's aneroid) to examine a relic strip of mid-mountain Castanopsis forest in a gully on the east side of Iamahagi stream. Visibility was so poor in the beginning, and most of the time, that, finding Castanopsis plentiful on the west side of the rocky creek, I prospected there rather profitably, and spotted things on the other side and sent my boys across for them. The creek flows there in a narrow, almost gorge-like ravine, the stream from about 12 to 30 feet wide. Common trees subsidiary to the Castanopsis were a Schizomeria and a Randia with big fragrant yellow flowers. I found a single plant of Astilbe on the rocky edge of the stream; Tecoma back a bit in a mixture of relic scraps of original forest and regrowths on garden lands. In about a thousand feet of altitude the flora changed almost completely except for mosses and a few ferns. Equisetum was plentiful on wet sandy banks of the stream; Coriaria grew here and there on streamside rocks; these being among the few vascular plants which occur also at camp level and above.

Sunday, August 16. The rain of last evening continued through the night and until about 11 this morning; light rain for the most part; the creek swollen but not high. Occasional short spells of sun in afternoon; black cloud filling Asaro Valley; thunder to NW in late afternoon. Return to SE weather ?

Left three electric lights burning and a door of the house open through the night and got a great haul of insects -- nearly all moths. Several striking big species; one specimen of the great, windowed hercules moth. The fluttering of this around the lights in the next room wakened me at 4:45 and I caught it in a net. A remarkable green leaf insect was brought in yesterday by a Chimbu and bought for about 1½ inches of trade tobacco; the imitation of a leaf complete to three brown, asymetrical, fungus-like spots.

Yoknapatawpha County

Had John drive me about 1½ miles along the six (high level) Gorgia road, the southernmost link of logging on the Natchez Lands is here, at 100 ft. greater elevation than the summit. Followed a very steep logging road, continuing in planes, up the slopes another c. 300 ft. Then had walked there in undisturbed forest which probably should be called mixed rain forest. Saw no canopy tree in flower or fruit. A little lower on the slopes were what looked like two species of oaks, one with gravish leaves, the other with brown young leaves. John tells me that from the road level up the middle slopes (to 2000 ft. or more) two species of oaks were cut in great quantity in the early stages of exploitation of the Lands and were the principal trees of these levels. Exploitation has been very thorough - destructive is a tender word. Not enough is left on the middle slopes to indicate what the forest may have been. Most striking feature now are very numerous relic stumps of large size (7ft?).

The effects of disturbance by lumbering in dorthiera more severe at lower fairly high altitudes than on the swelterings areas of the country. The sun has greater drying power here. Damage to the forests is therefore more permanent. Improvement seem much slower to establish themselves than on the Jordands.

Saturday, August 15. A thick mist erected in the valley sometime during the night and did not clear off until late in the morning. Steady rain began around 2 o'clock and at 6:15 he still is falling (thunder coming in). Often he hear that very heavy rains have fallen (yesterday) in the Upper Valley and that all air routes are closed to traffic.

Drove down the road to 900 ft. below camp (5900 ft. on Gorgia aneroid) to examine a relic strip of mid-mountain Drabopomeia forest in a gully on the east side of Lamanai stream. Visibility was so poor in the beginning, and most of the time, that, finding Acrotomopis flowerful on the west side of the rocky creek, I proceeded there rather profitably, and spotted things on the other side and went to pass across for them. The creek flows there in a narrow, almost gorge-like rewine, the stream from about 12 to 30 feet wide. Torrent trees abbeidiar to the Gadenpsis were a Sonicomeria and a Fagia with fragrant yellow flowers. I found a stunted plant of Aphlia on the rocky edge of the stream; tacoma back a bit in a mixture of relic stands of original forest and regrowth on earlier lands. In about a thousand feet of altitude the flora changed almost completely except for mosses and a few ferns. Hand seen was plentiful on wet sandy banks of the stream; Coptonia grew here and there on streamside rocks; these being among the few vascular plants which occur also at camp level and above.

Sunday, August 16. The rain of last evening continued through the night and until about 11 this morning; light rain for the last part; the creek swollen but not high. Occasional short spells of sun in afternoon; black clouds hulling Acero Valley; changed to sun late afternoon. Return to 5?? weather ?

Left three electric lights burning and a door of the house open through the night and got a great haul of insects -- nearly all moths. Several striking big specimens one specimen of the great, white-wed hercules moth. The flutterings of this abound the lights in the next room wakened me at 4:45 and I caught it in a net. A remarkable green leaf insect was brought in yesterday by a Chinese and bought for about 1½ kumpun of trade tobacco; the imitation of a leaf complete to three brown, asymmetrical, fungus-like spots.

Kotuni

All day spent on the preparation of the good collections of plants made yesterday, and some leftovers from the previous day.

Sawmill and logging gang natives, on their Sunday off, have been scouring the forests for mammals and herps. Three species new for the camp thus added to the collection: Pogonomys, Pogonomelomys, and Syconycteris. Total species for the camp now stands at 29.

Despite the weather, or perhaps because of it, several whites from Goroka have been fishing for rainbow trout in the creek. People in 4 vehicles drew up at the sawmill but no one came near us. Apparently the sole catch was one trout about a foot long.

Monday, August 17. More bad weather. Mist filled the valley during the night and stayed until after 8 this a.m. Day completely overcast; intermittent smart showers from noon on.

Went down to the Castanopsis forest again and this time crossed the creek and went some distance up the gully through the forest strip. The ground too rocky to cultivate, hence the survival of the forest. Again a number of plants collected which do not occur higher on the mountain to my knowledge.

John, returning from the weekend in Goroka last night, brought four specimens of a brown beetle, about an inch long, which appears briefly at this time of year and is caught in quantity and eaten by the natives. So far as I can determine the appearance takes place only in the vicinity of Goroka, in the grassy Asaro Valley. The beetles appear in vast numbers from underground late in the afternoon (about 5:30 yesterday), fly to a height of 5-6 feet from the ground, mate, and return underground before dark. Some few remain and may be seen about lights at night. The natives cook the beetles lightly on the fire, or, these days in the town, fry them. The beetle swarm ended tennis on the Goroka courts yesterday afternoon. They were on the airport and all other open grassy places. Many natives collecting them.

This was a day of milestones in the botany department: passed 300 numbers for this camp, 2000 numbers and 10,000 herbarium sheets for the trip.

Tuesday, August 18. The overcast weather continues, but no rain fell today.

For my last morning in the field at this camp I went up the northernmost logging road to its limit on the branck creek which flows into the water race, thence cut track to the crest of the spur, where there was another old logging road which I followed some distance, then back down the spur to the water race. A pretty good morning, the take including a big-flowered red Rhododendron new to the collection (a high epiphyte) and several minor canopy trees. Visibility was poor, and I was somewhat handicapped by a cold -- apparently one of those quick virus things which the boys brought back from their weekend in town.

Wednesday, August 19. Collecting at this camp ended today. My total is 330 numbers of plants (about50 over first expectations); 1650 herbarium sheets; 19 bryophytes. We would appear to have the first botanical collections from the upper levels of Mt. Otto. Unfortunately, the timber concession area has been too greatly disturbed to offer good collecting, and it is difficult to arrive at a conclusion as to what the forests may have been before they were so badly wrecked for lumber. Definitely established are the presence of subalpine forest, beech forest, mid-mountain Castanopsis forest, and mixed rain forest of montane type in the narrow valley of Iamahagi Creek.

Kahuna

All day spent on the preparation of the good collections of plants made yesterday, and some leftovers from the previous day.

Sewell and Jonging gang natives, on their Sunday off, have been counting the forests for mammals and birds. Three species new for the camp-time added to the collection: Fagomyrs, Pogonomelomys, and Bloomycteris. Total species for the camp now stands at 29.

Despite the weather, or perhaps because of it, several whites from Kerema have been fishing for rainbow trout in the creek. Too late in vehicles drew up at the sawmill but no one came near us. Apparently the sole catch was one trout about a foot long.

Monday, August 17. More bad weather. Mist filled the valley during the night and lingered until after 8 this a.m. Day completely overcast; intermittent drizzle showers from noon on.

Went down to the Gaitanguia forest again and this time crossed the creek and went some distance up the gully through the forest strip. The ground too poor to cultivate, hence the survival of the forest. Again a number of plants collected which do not occur higher on the mountain to my knowledge.

John, returning from the weekend in Kerema last night, brought four specimens of a brush-tailed, scaly-skin phalanger, which appears quite at this time of year and is common in quantity and eaten by the natives. So far as I can determine the appearance takes place only in the vicinity of Kerema, in the Waria Valley. The beetles appear in vast numbers from underground late in the afternoon (about 4:30 p.m. daily), fly to a height of 4-6 feet from the ground, mate, and return underground before dark. Some few reach and may be seen about lights at night. The natives cook the beetles lightly on the fire, or, these days in the town, fry them. The beetle swarm emerges on the Kerema coast yesterday afternoon. They were on the airport and all other open grassy places. Many natives collecting them.

This was a day of milestones in the botany department: passed 300 numbers for this camp, 2000 numbers and 10,000 herbarium sheets for the trip.

Tuesday, August 18. The overcast weather continues, but no rain fell today.

For my last morning in the field at this camp I went up the northernmost logging road to its limit on the Kunuk creek which flows into the Waria race. Chance cut track to the creek at the east, where there was another old logging road which I followed some distance, then back down the east to the Waria race. A pretty cool morning, the lake including a big-flowered red Rhododendron new to the collection (a bid epiphyte) and several minor canopy trees. Visibility was poor, and I was somewhat handicapped by a cold — apparently one of those quick virus things which the boys brought back from their weekend in town.

Wednesday, August 19. Collecting at this camp ended today. My total is 320 numbers of plants (about 350 over first expectations); 1650 herbarium sheets; 19 bryophytes. We would appear to have the first botanical collections from the upper Waria valley, Oro. Unfortunately, the timber concession area has been too greatly disturbed to offer good collecting, and it is difficult to arrive at a comparison as to what the forests may have been before they were so badly wrecked for lumber. Definitely established are the presence of sandpine forest, beech forest, mid-mountain Gaitanguia forest, and mixed rain forest of montane type in the narrow valley of Kunuk creek.

Kotuni

My insect collection from the camp is nothing to boast about. Had some good nights for the light trap and hand catching at the lights, the proceeds being nearly all moths. There is a good variety in the moths. Beetles and other night flying groups are very scarce. The weather has been so overcast, when not actually raining, that hardly any butterflies have been caught and not a single dragonfly or damselfly has been seen by me. Two hercules moths are included in the collection.

Van's mammal total is 128 specimens of 29 species (11 marsupials, 13 rodents, 5 bats). New for the trip are: Pseudocheirus corinnae, Phascolosorex, Satanellus, Uromys anak, and (?) Murina. The mammal population is very similar to that of Pengagl on the slopes of Mt. Wilhelm. Herps from the camp run to the very big total of 947, the breakdown being 3 snakes (our first for the Bismarck Range), 27 lizards (all skinks), and 917 frogs (at least 12-15 species, thinks Van). Most of the herps were brought in by the local Kotun people and especially the boys (Chimbus and Mt. Hagens) of the timber cutting gangs. A substantial number of mammals were secured in the same way. There has been little success from bat shooting. Six of the total of 16 specimens of bats were collected yesterday afternoon by Van from a boulder cave about ½ mile up Iamahagi Creek and on the other side of the stream from camp. These were a Miniopterus. On a previous visit to the cave it was found unoccupied; a big deposit of wet guano on the floor. The Kotuns are said to have raided the cave before Van's first visit.

The above remarks on insects have to be modified. My two boys having some slack time this afternoon, I sent them insect hunting with net and beating sheet. The proceeds included two damselflies of which the most conspicuous color is blue. There was some sunshine in the afternoon, none this morning.

Thursday, August 20. Moved down to Goroka, leaving Kotuni about 10:30 and arriving in Goroka in about half an hour. Pleasant to be in the broad, sunny Goroka valley. On our last sight of the Kotuni mountains, the usual dark pall of cloud lay over them.

As usual, we unloaded our cargo at Government Stores and we are staying in Buntings' guest house. Here we have some feeling of being civilized again. We were hospitably received by Jim Leahy Jr. at Kotuni, but the living there was terribly crude -- profanity of the silly sort, house overrun by dogs and cats, the whole establishment reeking of pigs. Nothing nice at all.

After lunch I called on Mick Foley, who is acting as District Commissioner in the absence of Seale on leave. Pleasant, efficient looking, red-headed giant. My mission was to gain information on the Lufa area close to the west of Mt. Michael. The sum of the visit was that I gained very little additional to what I already knew. Foley showed me two sheets of an unpublished U.S. map or series of maps on this part of New Guinea based on World War II aerial photographs, also a sheet of the colored "U.S. Aeronautical Approach Chart." The unpublished, nameless sheets may be for the purpose of revising the other. All were brought to Goroka by Dr. Carleton Gajdusek of the Kuru Disease project, with a request from Washington that they be corrected as far as possible and returned to Washington by Gajdusek, who returns to the States next month.

Rest of day spent in reorganizing supplies for the next phase of our work. John and I will start on a reconnaissance of the Mt. Michael area tomorrow, leaving Van to collect at Danny Leahy's place on the lower Bena Bena River.

Autumn

My insect collection from the camp is nothing to boast about. Was some good nights for the light trap and hand collecting at the lights, the processes being nearly all moths. There is a good variety in the moths. Beetles and other night flying groups are very scarce. The weather has been so overcast, when not actually raining, that hardly any butterflies have been caught and not a single dragonfly or damselfly has been seen by me. Two migrating moths are included in the collection.

Van's annual total is 1,27 specimens of 29 species (11 m.species, 11 females, 5 pairs). Now for the tally: Pseudocleitarchus conjunctus, Phasmolocorex Lathmellus, Dorcatoma sp., and (?) Lorina. The material population is very similar to that of previous years in the ul pes of it. Illegal. Hence the comparison to the very big total of 9,27. The breakdown being: 3 species (one first for the Kaunga range), 27 Diptera (all skinks), and 97 from at least 13-15 species. Which Van? Most of the moths we brought in by the local town people and especially the boys (Dimitra and Ik. Ilgonas) or the Andes catching van. A substantial number of insects were found in the same way. Those has been little success from pit shooting. Of the total of 1,9 specimens of 8 to 9 were collected yesterday afternoon by Van from a boulder cave about 3 miles up Jamahori Creek and on the other side of the stream from camp. There were a Ichneumon. On a previous visit to the cave it was found unoccupied; a bit a-peak of wet guano on the floor. The Kouns are said to have raided the cave before Van's first visit.

The above remarks on insects have to be modified. My two boys having same slack time at afternoon, I sent them insect hunting with net and beating sheet. The proceeds included two damsel flies of which the most conspicuous color is blue. There was some flushing in the afternoon, most this morning.

Thursday, August 20. Moved down to camp, leaving Kotunt about 10:30 and arriving in camp in about half an hour. Pleasant to be in the open, sunny morning with. The our last night of the Kotunt mountains, the usual mark mail of cloud lay over them.

Arrangements unloaded our camps at Government Stores and we are staying in buildings used by Kouns. Here we have some feeling of being civilized again. We were hospitably received by Mr. Ly Ly, as Kotunt, but the living there was terribly crude -- probably of the silly sort, house overrun by boys and cats, the whole establishment reeking of piss. Nothing nice at all.

After lunch I called on Mick Foley, who is acting as District Commissioner in the absence of Dale on leave. Pleasant, efficient looking, red-headed giant. My mission was to gain information on the Mala area close to the west of it. Unusual. The sum of the visit was that I learned very little additional to what I already knew. Foley showed me two sheets of an unpublished U.S. map or media of maps on this part of New Guinea based on World War II aerial photographs, also a sheet of the so-called "U.S. Aeronautical Approach Chart." The unpublished, numerous sheets may be for the purpose of revising the other. All were brought to Goroka by Mr. Anderson Dalhunek of the Aura Diseases project, with a request from headquarters that they be corrected as far as possible and returned to Washington by Dalhunek, who returns to the States next month.

Rest of day spent in reorganizing supplies for the next phase of our work. Van and I will depart on a reconnaissance of the Mt. Michael area tomorrow, leaving Jim to pack at Kauny Valley's place on the lower Sepa River.

Kotuni-Goroka-Lufa-Gono

Friday, August 21. Left Goroka in the Land Rover at 8:55 a.m.; altimeter reading 5600 ft. Dropped Van and 4 boys at Danny Leahy's coffee plantation on the Bena Bena River (4850 ft.) and left there at 9:45 for Lufa on the west slopes of Mt. Michael at the western termination what seems properly called the Kratky Range.

From Leahy's place a rough road leads up a narrow spur in the great grasslands of the Asaro-Kami Valley to the main road connecting Goroka with Kainantu and Lae. On this main road the Bene Bena is crossed on a bridge at 5000 ft. The Lufa turnoff was at 5088 miles on our speedometer. The Kami River, draining the eastern end of the big valley, was crossed on a wire-cable swing bridge at 4800 ft. Bridge ca. 50 yards long, with a decking of 4 x 2 sawn timber about 12 ft. wide on which are laid two wheel tracks of Marsden matting. The thrust of our Land Rover, creeping over in 4-wheel drive, raised a series of ripples in the bridge decking several inches high. Ludy Smith, son of the only white man ever hanged in the Territory (he was intolerable in his wholesale shooting of natives in the early days (1930's) on the Highlands) has a coffee plantation just across the Kami. A long, winding, generally easy climb over grasslands and scattered villages brought us to a 6450-foot saddle in a partly timbered spur ridge which separated the grassy Asaro-Kami Valley from the NW slopes of Mt. Michael. These slopes drop down into the gorge by which the Asaro-Kami waters leave the big valley in their flow towards the Purari, and their upper parts are heavily forested. Upper parts of Mt. Michael under cloud, but sharp minor peaks look like recent volcanic. Speedo 5104 miles.

Dropping slightly through garden lands and relic gully strips of Castanopsis forest we came to Jack Thick's sawmill at 6400 ft., 5106 miles. Had lunch there. Living conditions very primitive. But it is an excellent timber proposition. A timber exploitation lease of 1600-1700 acres begins close above the mill. A magnificent beech forest containing, besides 2 Nothofagus spp. (called locally Yomba and Graip), other hardwoods including oaks and some Podocarpus softwoods. Log hauling done with a T7 and T18 tractors and a jinker truck under fairly easy conditions of slope. At the sawmill were Yomba logs a good 4½ feet in diameter. The breaking-down saw only 60 inches in diameter. The big logs therefore split with blasting powder. Scattered kauri pines tower in the outskirts of the beech forest and in Castanopsis forest in the gullies; estimated to yield 700,000 super feet of lumber according to Thick. Saw the burnt remains of a huge kauri (a few burnt buttress rrots in the edge of a native sweet potato garden) variously stated to have measured 36 ft. (Thick) and 32 ft. (John Collins) in circumference at breast height. The timber lease estimated to carry 7 million feet of lumber. Mill established within the last 6 months. Badly planned according to the old Tasmanian sawyer (Bill Belbin) who runs it for Thick. Sited on the bank of a stream which would provide ample water power, it is powered by two diesel engines (one a Japanese war relic); breaking down saw to small and bench badly aligned, etc. The mill and timber yard are in good, orderly condition. An excellent grade of lumber is being produced. The long road haulage to market at Goroka (38 miles) will soon be reduced 15 miles by a short-cut road now being made.

Leaving the mill at 12:45 we climbed about a mile to the crest of a spur ridge at 7000 ft. This the highest point on the road to Lufa. Forested except where disturbed by logging operations. Two timber loading ramps there. Dropping gradually from there by a good road winding through splendid tall Beech forest, in about 2 miles we came to the grasslands again at 6550 feet. Above the road, however, the slopes of Mt. Michael continued forest covered. A few very big kauris

Kotani-Gorobe-Lara-Dano

Friday, August 21. Left Gorobe in the land Rover at 8:35 a.m.; altimeter reading 5650 ft. Dropped Van and 4 boys at Darby's coffee plantation on the Dano Dana River (4850 ft.) and left there at 9:45 for Lara on the west slopes of Mt. Michael at the western termination what seems properly called the Darby range.

From Darby's place a rough road leads up a narrow spur in the great grass-lands of the Asaro-Kami Valley to the main road connecting Goroka with Kainantu and Lae. On this main road the Dana Dana is crossed on a bridge at 5000 ft. The Lara turnoff was at 10:1 miles on our speedometer. The Lara River, draining the western end of the big valley, was crossed on a wire-cable swing bridge at 4600 ft. Bridge is 50 yards long, with a decking of 4 x 2 sawn timber about 12 ft. wide on which are laid two wheel tracks of gravel-road material. The thrust of our land Rover, crossing over in 4-wheel drive, raised a series of ripples in the bridge decking several inches high. Only Smith, son of the only white man ever lynched in the Territory (he was intolerable in his wholesale shooting of natives in the early days (1920's) on the Highlands) has a coffee plantation just across the Kami. Along, winding, generally easy climb over grasslands and scattered villages brought us to a 5850-foot saddle in a partly timbered spur ridge which separated the grassy Asaro-Kami Valley from the N. slopes of Mt. Michael. These slopes drop down into the gorge by which the Asaro-Kami waters leave the big valley in their flow towards the Purari, and their upper parts are heavily forested. Upper parts of Mt. Michael under cloud, but show minor peaks look like recent volcanic peaks 10% miles.

Dropping slightly through garden lands and rolls quite a stretch of Casuarinaceae forest we came to dark Thick's sawmill at 5400 ft., 5.6 miles. Not much there. Living conditions very primitive. But it is an excellent timber proposition. A timber exploitation lease of 1600-1700 acres begins close above the mill. A magnificent beech forest containing, besides Nothofagus spp. (called locally Yako and Orsip), other hardwoods including oaks and some Podocarpus softwoods. Log hauling done with a D7 and D8 tractors and a timber truck under fairly easy conditions of slope. At the sawmill were some logs a good 4½ feet in diameter. The breaking-down saw only 60 inches in diameter. The big logs therefore split with blasting powder. Scattered kauri pines tower in the outskirts of the beech forest and in Castanopsis forest in the gullies; estimated to yield 700,000 super feet of lumber according to Thick. Saw the burnt remains of a huge kauri (a few burnt outcrops crots in the edge of a native sweet potato garden) variously stated to have measures 36 ft. (Thick) and 32 ft. (John Collins) in circumference at breast height. The timber lease estimated to carry 7 million feet of lumber. Mill established within the last 6 months. Daily planned commuting to the old Tanganian sawyer (Bill Belbin) who runs it for Thick. Sited on the bank of a stream which could provide ample water power. It is powered by two diesel engines (one a Japanese war relic); breaking down saw to small and bench body altered, etc. The mill and timber yard are in good, orderly condition. An excellent grade of lumber is being produced. The long road haulage to market at Goroka (38 miles) will soon be reduced 15 miles by a short-cut road now being made.

Leaving the mill at 12:45 we climbed about a mile to the crest of a spur ridge at 7000 ft. This the highest point on the road to Lara. Crossed excellent share distributed by logging operations. Two timber locating camps there. Dropping gradually from there by a good road winding through splendid tall Beech forest. In about 2 miles we came to the crossland again at 5550 feet. Above the road, however, the slopes of Mt. Michael continued forest covered. A few very big kauri

Recce. Lufa-Gono

in forest above the road; a few small ones in Castanopsis forest gullies cutting across the road. Lufa, 6500 ft., reached at 5123 miles. Were told there that the distance from Goroka is 47 miles by road; according to a road sign at the government HQ in Goroka it is 50 miles.

Patrol Officer, Jock Aitkin, in charge of Lufa, had been away on patrol on the very rough country towards the Papuan border for two weeks and was not expected back for another 10 days. We were very hospitably received by Mr. and Mrs. Bill McSeveny, European Medical Assistant i/c native hospital (only other official there was a native schoolmaster trying to teach, and look after under boarding school conditions, about 50 native children). After a cup of tea, Bill McSeveny joined us for the 12-mile drive around Mt. Michael to Gono on the south or SE slopes. Road opened for traffic only last November. Like most roads on the Highlands, the route was marked or chosen by a non-engineer patrol officer and the work done by natives with picks and shovels under the supervision of native police boys. The Gono road was an excellent job in most parts. The country very steep. All the route from a mile or so past Lufa through primary tall forest which seemed to be mainly beech. Highest point on the road 7680 ft. at a place called Hogave (no habitation or clearing). In about 1 hour 20 minutes we came to Gono Resthouse on the edge of population again at 6600 ft., 5128 miles. Good newly built "house kiap" and ancillary buildings surrounded by tight high pig fence. By this time rain had set in and mist was beginning to drift up from a rugged valley to the SE. Could not see much, but McSeveny, who had been on medical patrols through all this area, said good forest occurred on easy slopes within a few minutes walk of the resthouse.

Having inspected the resthouse accommodations, we went on about ¼ mile to the end of the road at Gono Mission, 6550 ft. This one of several missions in this general area established by the Faith Mission of the U.S.A. Gono was started four years ago by (Rev.?) Ben Wertz and is being well developed by him. Tall, gangly, pleasant Californian, very unmissionary-like in rough clothes and leather work gloves (the only work gloves I have seen in New Guinea), Wertz was toiling in the mist and rain with two visiting Faith men whose Chev. pick-up was bogged in the mission grounds. We were invited in for coffee and ice cream. The coffee was Nescafe, for Mrs. Wertz admitted she had failed to make anything drinkable by roasting and grinding New Guinea coffee beans; the ice cream was of the mix variety out of a packet, for the four cows of the Mission were not yet in milk. The working parts of the hand-powered ice cream machine had been subject to Customs duty as "refrigerator parts."

Got a late start on the return drive and arrived at Lufa at 6:30 p.m. Rain and mist conitnued until we were well around the mountain towards its western slopes. On this part of the drive we had views of some very remarkable cloud effects: a great white cloud bank pouring over Gono Spur from the SE; a great cloud pile over Mt. Wilhelm illuminated by the setting sun, etc. Mt. Elimbari, a striking limestone mass near Chuave, very conspicuous.

At Lufa we were put into the absent patrol officer's house to sleep, and dined with the McSevenys. They live in a grass-thatched house with walls and floors of plaited, split pit-pit (wild sugarcane). Wide, shuttered windows give a fine view over the Asaro Gorge. Living room tastefully furnished and very neat. McSeveny's mother there on a visit from Sydney. Lufa patrol post was established as recently as 1953. Until at least 1955 (according to a map on the admin. office wall) the Gono area was uncontrolled territory. The most remote part of the Lufa area, down on the Papuan border, was declared under control and open to all comers less than a year ago. According to McSeveny, the people down there are still

Lagoon. Lula-Lomo

in forest above the road; a few small cones in Pastaquasia forest qualifies entirely across the road. Lula, 9500 ft., reached at 11.7 miles. Here we hold there that the distance from Goroka is 47 miles by road; according to a road sign at the government HQ in Goroka is 50 miles.

Patrol officer, Mack Aitken, in charge of Lula, had been away on patrol in the very rough country towards the Papuan border for two weeks and was not expected back for another 10 days. We were very hospitably received by Mr. and Mrs. Bill Keveney, European medical assistant i/c native hospital (only other official there was a native schoolmaster trying to teach, and look after under-staffing school conditions, about 30 native children). After a cup of tea, Bill Keveney joined us for the 1½-mile drive around Mt. Kubwal to Lomo on the south or Ai slopes. Road opened for traffic only last November. Like most roads on the highlands, the route was marked or chosen by a non-engineer patrol officer and the work done by natives with axes and shovels under the supervision of native police boys. The Lomo road was an excellent job in most parts. The country very steep. All the roads from 5 miles on up past Lula through primary hill forest which seemed to be mainly beech. At that point on the road 7500 ft. at a place called Ugeye (no habitation or clearing). In about ½ hour 20 minutes we came to Lomo resthouse on the edge of population again at 6000 ft., 5828 miles. Good newly built "house Kiap" and auxiliary buildings surrounded by light high pig fence. By this time rain had set in and mist was beginning to drift up from a wooded valley to the SE. Could not see much. But Keveney, who had been on medical patrols through all this area, said good forest occurred on many slopes within a few minutes walk of the resthouse.

Having inspected the resthouse accommodations, we went on about ½ mile to the end of the road at Lomo Plateau, 5520 ft. This is one of several mission in this general area established by the Faith Mission of the U.S.A. Lomo was started four years ago by (Rev.) Ben Weeks and is being well developed by him. Very pleasant climate, very musical Kuyo-like in rough clothes and leather work gloves (the only work gloves I have seen in New Guinea). Here was the line in the mist and rain with two visiting South African whose grey, wind-burned logged in the mission grounds. We were invited in for coffee and ice cream. The coffee was delicious, for the visitors had failed to make anything drinkable by roasting and grinding raw Guinea coffee beans; the ice cream was of the six variety and of a packet, for the four cows of the mission were not yet in milk. The working parts of the hand-powered ice cream machine had been supplied to Ben Weeks only as "refrigerator parts."

Got a late start on the return drive and arrived at Lula at 6:20 p.m. Light and mist continued until we were well around the mountain towards the western slopes. On this part of the drive we had views of some very remarkable cloud effects: a great white cloud bank pouring over Lomo Gap from the SE; a great cloud pile over Mt. Wilhelm illuminated by the setting sun, etc. Mt. Wilhelm, a striking limestone mass near Gumsa, very conspicuous.

At Lula we stopped into the acting patrol officer's house to sleep, and dined with the Keveneys. They live in a pre-fabricated house with walls and floors of plated, split rib-pit (with mangrove). Wide, unfactored windows give a fine view over the jagged forest. Finding room fantastically furnished and very neat. Keveney's mother there on a visit from Sydney. Lula patrol post was established as recently as 1957. Until at least 1955 (according to a map on the admin. office wall) the Lomo area was uncontrolled territory. The most remote part of the Lula area, down on the Papuan border, was indians under control and open to all comers less than a year ago. According to Keveney, the people down there are still

pretty wild, and still eat their dead.

Saturday, August 22. Left Lufa after breakfast with the McSevenys and on the way back to Goroka examined the beech forest of the timber concession area for a camp site. The only feasible place was in a bend of the road on the Lufa side of and 100 feet or so below the crest of the 7000-ft. spur ridge.

Reached Danny Leahy's place on the Bena Bena about 1:30. Temperature in the house 85 F. Conditions very dry in the valley, and although the coarse grass cover of Themeda gigantea, pit-pit, etc. looked green, there had been several recent fires amd two were burning this afternoon. Van's trapping had yielded only Rattus ruber and R. exulans, the latter very common. Rousettus, the first for the trip, taken in one of three bat nets set under fig trees of the F. ribes type. From a native on the edge of one of the grassfires on the road back to Goroka a specimen of Echymipera kaluba, with most of its hair scorched off, was bought (its skull, for a shilling).

The few plants collected on the trip were all new to the collection: an Echinocarpus, a cunon., an Elaeocarpus and a Carpodetus (?) from the subcanopy of the beech forest of the timber concession area; a remarkable, bracted, green flowered Loranthus from the same area; a pink Rhododendron from the grasslands towards the Kami, etc. A feather-leaved palm was common in the beech forest on the Gono side of Mt. Michael up to the 7680-ft. high point on the road, which is very high for that type of palm in New Guinea. The area promised well for plants. It is quite unknown for mammals. On the Gono side one has the feeling of being away from Central Highlands of New Guinea and close to the lower mountain country of Papua, which indeed is so. This could mean important zoological changes.

We have an order in for food supplies for 3 weeks. On Monday we will leave Goroka with plans for a first Mt. Michael camp at Gono Resthouse, a second in the timber concession.

Geese. Infrequent

pretty wild, and still eat their dead.

Saturday, August 22. Left Lula after breakfast with the observers and on the way back to Dorona examined the beech forest of the timber concession area for a camp site. The only feasible place was in a bend of the road on the Lula side of and 100 feet or so below the crest of the 7000-ft. spur ridge.

Reached Nancy Lake's place on the Lana Rena about 1:30. Temperature in the homes 89°. Conditions very dry in the valley, and although the coarse grass cover of Pteridophyta, bite-pit, etc. looked green, there had been several recent fires and two were burning this afternoon. Year's breeding had yielded only Ratina rufer and R. exulans, the latter very common. Rosenbergia, the first for the trip, taken in one of three bad nets set under fig trees of the L. ribbon type. From a native on the edge of one of the rasafires on the road back to Dorona a specimen of Acanthoperna valida, although at its main according all, was bought (its adult, for a shilling).

The few plants collected on the trip were all new to the collection: Ranunculus, a buttercup, an Alsaccorrus and a Sarcodetes (?) from the subcanopy of the beech forest of the timber concession area; a remarkable, broadly floccered Lorranthus from the same area; a pink Rhododendron from the grassland towards the Rena. Also, a feather-leaved palm was common in the beech forest on the Dono side of it. Climbed up to the 7000-ft. ridge point on the road, which is very high for that type of climb in New Guinea. The area promised well for plants. It is quite unknown for mammals. On the Dono side one has the feeling of being away from Central Highlands of New Guinea and close to the lower mountain country of Papua, which indeed is so. This would mean important zoological observations.

We have an order in for food supplies for 3 weeks. On Monday we will leave Dorona with plans for a first at Lula, Michael camp at Dono last year, a second in the timber concession.

Goroka - Gono

Sunday, August 23. Day spent on Mt. Michael notes and some letter writing. There was a long break for lunch. Rus Webster, our host at Buntings while Ken James is on leave, invited Matron Bedelia Mulchay to eat with us. She nursed Geoff Tate when he was critically ill at Samarai in 1953. A stout, jolly person, top notch in her profession, and fond of beer and rum. Now in charge of the Goroka Hospital.

Bedelia contributed an item on the annual beetle visitation. A white family of Goroka eats them, boiled, and say they taste like prawns.

Monday, August 24. Left Goroka at 9:40 a.m. and arrived Gono Resthouse 3:20 p.m. Distance 62 miles.

Before leaving Goroka I called on Acting District Commissioner Foley to ask permission to use the Gono Resthouse. He took me to the Sub-District Officer Holmes . The ADO hesitated noticeably before granting the permission. Asked to be assured that Patrol Officer Aitkin, when he turns up, would be given room. One of the few small minded officials we have had contact with.

At Lufa we called in to deliver mail and a carton of stores to the McSevenys and of course were invited to stay for a cup of tea with the usual things to go with it. This was at 1:30. We had stopped for morning tea at Ian Fraser's place near the Bena Bena, but we were hungry and glad of the snack.

About half way between Lufa and Gomo we ran into mist, which turned into rather heavy rain soon after our arrival at the resthouse. The resthouse on top of a high ridge open to the full blast of the SE wind and the mist and rain it carries, funnelled up a narrow valley in very steep mountains. In my first notes on Gono I positioned it on the south or southeast slopes of Mt. Michael. I lost sense of direction on our first trip out, and again today. We are on the west slopes of the mountain, the sawmill on the north slopes.

Missionary Ben Wertz and daughter Ruth (about 10) drove up to see us in the evening, a tremendous load of mission natives piled inside and all over their jeep. They are much interested in what we are doing and Wertz (Pennsylvania Dutchman who lived a long time in California) collected insects in his boyhood. Ruth departed with one of my nets and a killing bottle. She has spent half her life among these natives and speaks the language very well. It is a peculiar language, reminding me somewhat of the Vailala talk of the Gulf of the Papua coast. Wertz an adept at pidgin English, which is the language of the mission. Under the new government ukase that all instruction in schools must be in English proper, his mission school was closed down recently.

Tuesday, August 25. And a wretched day. When I awoke this morning our doorless resthouse was full of mist and things left out of boxes overnight were covered with a film of moisture. The mist stayed all day, sometimes down to the ground on our ridge top, sometimes thinning so that we could see two or three hundred yards, often accompanied by drizzling to fairly heavy rain.

Main work of the day was rigging two work tents, and a work table, etc. in mine. Tent poles were brought in on the Land Rover. The weather slowed the work but my part of it is about finished tonight.

Gorka - Dono

Sunday, August 22. Day spent on Mt. Michael notes and some letter writing. There was a long break for lunch. The weather, our host at Amphitheatre while Ken Jones is on leave, invited Sebastian Malonay to eat with us. She named Doris Tite when he was criticising Ill at Seaford in 1952. A stout, jolly person, top notch in her profession, and fond of beer and rum. Now in charge of the Gorka hospital.

Sebastian contributed an item on the annual beetle visitation. A white family of Gorka eats them, boiled, and say they taste like prawns.

Monday, August 23. Left Gorka at 9:10 a.m. and arrived Dono Resthouse 3:20 p.m. Distance 32 miles.

Before leaving Gorka I called in at Acting District Commissioner Foley to ask permission to use the Dono Resthouse. He took me to the Sub-District Officer Holmes. The sub-Lieutenant rebuked before granting the permission. Asked to be assured that Patrol Officer Atkin, when he turns up, would be given room. Here or the few small villages officials we have had contact with.

At Lufa we called in to deliver mail and a carton of beers to the missionaries and of course were invited to stay for a cup of tea with the usual things to go with it. This was at 1:30. We had stopped for morning tea at Ian Fraser's place near the Bena Bena, but we were hungry and had a lot of the mission.

About half way between Lufa and Dono we ran into mist, which turned into rather heavy rain soon after our arrival at the rest house. The rest house on top of a hill looking out to the flat plain of the Lufa and the mist and rain it carried. Lufa is in a narrow valley in very steep mountains. On my first motor on Dono I positioned it on the south or southwest slopes of Mt. Michael. I lost dates or direction on our first trip out, and again today. We are on the west slopes of the mountain, the summit on the north slope.

Mission mary Sam Ferris and daughter Ruth (about 10) drove up to see us in the evening, a tremendous load of mission native called Imaine and all over their loads. They were much interested in what we are doing and Doris (Ferris-Sylvania Wickham who lived a long time in California) collected insects in his boyhood. Ruth dropped with one of my moths and a killing bottle. The boys spent their time among these natives and speaks the language very well. It is a peculiar language, reminding me somewhat of the Valiala talk of the Gulf of the Papua coast. Sam's address at Yiddin Yeallah, which is the language of the mission. Under the new government rules that all instruction in schools must be in English proper, his mission school was closed down recently.

Tuesday, August 24. And a wretched day. Then - awoke this morning our corrugated iron roofhouse was full of mist and things left out of boxes overnight were covered with a film of moisture. The mist stayed all day, sometimes down to the ground on our ridge too, sometimes thinning so that we could see two or three hundred yards, often accompanied by drizzling to fairly heavy rain.

Main work of the day was rigging two work benches, and a work table, etc. in mine. Tent poles were brought in on the land rover. The weather slowed the work but my part of it is about finished tonight.

Goroka - Gono

Deciding about 9 a.m. that the mist was unlikely to clear, I set out alone along the main track leading bush (southeast) from the resthouse. Went half to the three-quarters of a mile without getting into the good forest we were told about on Friday's visit. A variety of relic trees of the primary forest stood in Pandanus groves and brushy second growths on former garden lands. A good sprinkling of these old trees were a brown pine (Podocarpus aff. neriifolius); some may have been Nothofagus. It was impossible to be sure in the mist.

What I saw in my morning walk was disappointing ecologically. Van got only widespread Rattus exulans in the few traps he had out last night. (A large Pipistrellus sp. was shot at dusk). I propose to give the locality a two-day trial and if it is not satisfactory move back to the #2 camp site on the north slopes of the mounatin Friday morning.

Out on the trail this morning I met several small groups of men and boys bound for the Gono Resthouse. Going to carry the cargo of a "seven day" master due to arrive today, they said in pidgin. About 1:30 in the afternoon a heavily laden green Land Rover was driven into the resthouse compound by Seventh Day Adventist medical missionary Dr. Len . With him was another clean-cut, and bigger and heavier man of early middle age named Eric Weir. was starting on a six-weeks patrol to the remote Karimui area in the border country, his chief mission being to give 5000shots for yaws. Weir, a professional photographer, was going with him to make movies and still photos -- under an Australian TV contract, and some sort of arrangement with one of the Los Angeles papers. There is also going to be an effort to sell an article to the National Geographic. I did not realize until afterwards that I should have offered them something other than a drink of tea to go with buttered scones, jam and honey, but both appeared to enjoy it. They would not accept an offer that they share the resthouse with us in the hope that tomorrow would be fine, but set off in mist and rain about 3 o'clock on a two-hour walk to the next resthouse. Their carriers were eager to get down to a lower and warmer altitude, according to . I held an umbrella over Weir and his Kodak Special while he filmed the start of the patrol, a red plastic bucket prominent in the foreground.

The "seven days" are generally disliked as missionaries in New Guinea. But our two visitors of today impressed me very favorably. saw service in New Guinea during the war and returned as a medical missionary. He founded the leprosy hospital at Mot Hagen and was there 7 o 9 years (a most unpopular medico named Yates now in charge there). Has made several trips recently into the country between here and the Papuan border. Weir, an Australian, spent several years in Vancouver and apparently had some connection with a Seventh Day Adventist medical training school at Los Angeles. Did some gold mining at one time on the upper Ramu River in New Guinea.

Today has shown up two more shoddy items in our outfitting. Sisal kraft paper I brought for wrapping botanical specimens preserved temporarily in formalin, and used for the first time on the trip for herbarium material collected on our recce. of Mt. Michael, has leaked formalin solution on diverse items with which the bundle came in contact (I have used other sisal kraft satisfactorily for years). A McGregor"Water repellent" windbreaker jacket, bought not cheaply, let rain into my skin this morning. The shysters did not label it "waterproof", of course.

Leaving about 4 a.m. that the next day quickly to clean, I set out alone along the main trail leading east (southeast) from the ranchhouse. Just half to the three-quarters of a mile without getting into the good forest we were told about on Friday's visit. A variety of relic growth of the primary forest about in Fantasia proved and on many second growths on former garden lands. A good portion of these old trees were a brown pine (Podocarpus sp.), perhaps may have been not [illegible]. It was impossible to be sure in the mist.

Much I saw in my morning walk was disappointingly geologically. Am not only wingsweep [illegible] in the few traps we had out last night. (A large [illegible] so, was shot at dusk). I suppose to give the locality a top-[illegible] and if it is not [illegible] back to the 24 camp site on the north shores of this mountain friday morning.

All on the trail this morning I met several small groups of [illegible] boys [illegible] to the [illegible]. Going to carry the corpse of a "seven day" master [illegible] to arrive today. They said in [illegible]. About 1:00 in the afternoon a heavily laden green land rover was driven into the ranchhouse compound by seventh day adventist medical missionary [illegible]. With him was another clean-cut, [illegible] and resolute man of early middle age named [illegible]. [illegible] was starting on a six-week [illegible] to the remote karimui area in the border country, while other mission being to give 3000 miles for years. Their, a professional photographer, was going with him to make movies and still photos — under an [illegible] TV contract, and some part of arrangement with one of the Los Angeles papers. [illegible] is also going to [illegible] efforts to sell an article to the National Geographic. I did not realize until afterwards that I should have offered them something to drink of tea to go with buttered scones, jam and honey, but both appeared [illegible] in. They would not accept an offer [illegible]. They share the ranchhouse with [illegible] in the hope that tomorrow would be fine, but not all in mist and rain about 5 o'clock on a two-hour ride to the mess ranchhouse. Motorcycles were [illegible] get down to a lower and lower altitude, according to [illegible]. I held on [illegible] over [illegible] and his [illegible] while he filmed the start of the [illegible] a red dramatic bucket commencing in the foreground.

The "seven days" are generally distinct assemblages in New Guinea, but our two visitors of today impressed me very favorably. [illegible] in New Guinea during the war are returned as a medical missionary. [illegible] the Lamper hospital at Aiyura [illegible] 10 years (a most appropriate medico named [illegible] is now in charge there). [illegible] recently into the country between Bulolo and the Lower Sepik [illegible]. [illegible] several years in Jamaica and apparently had some connection with a Seventh Day Adventist medical training school at Los Angeles. Did some [illegible] in the upper Sepik River in [illegible].

Today has shown us two good smokey items in our outfitting. [illegible] paper [illegible] for warm the potential specimens preserved temporarily in formalin, and [illegible] for the first time on this [illegible] burbering material collected on our [illegible]. [illegible] Tarbuck formalin solution on diverse items with which [illegible] came in contact [illegible] years [illegible] satisfactorily for years). A [illegible] rubber [illegible] inner tube, bought not cheaply, let [illegible] my with this morning. The [illegible] tin not label it "waterproof", of course.

Gono

Wednesday, August 26. A generally overcast day, but the clouds were high most of the time, especially in early morning, when some distant peaks could be seen about north beyond Mt. Elimbari (Mt. Kerigomna for one ?) and what appeared to be Mt. Karimui down on the Papuan border. First rain fell at 12:30 p.m., at a time when some of the upper parts of Mt. Michael (called AMOI (ah-moy) by the Gono people) were briefly in view. Light to heavy showers at intervals through the afternoon and into the night. And, of course, the usual thick mist.

Had a good look at the nearer country to the west, traveling a good hour along the government footpath which leads in that direction. The path followed approximately the upper edge of the garden lands and the lower edge of the primary forest. This is where the people have their pandan groves. Tongues of second growth forest thrust up the steep slopes above the road. Below the road the old garden lands had mainly gone to tall grass (principally Saccharum, apparently). The forested slopes would be difficult to work. A short stay in this locality will satisfy me.

I saw mostly relics of the primary forest and could not recognize Nothofagus. I was in a big indentation in the hills where beeches may not occur. Two spp. of oaks recognized as isolated relics on the crests of spurs, one with brown floccose leaves the other with grayish foliage, the former collected in flower and fruit. Most of the trees were unfamiliar to me. A common Schizomeria (?) may have been a species collected at 2000 m below Kotuni, and a narrow leaved pink Begonia did occur on Mt. Otto. Gathered only 15 species.

The track I followed this morning carries a lot of native traffic going both ways. A fair proportion of the travelers met, especially the women and older men, knew no pidgin. Could not make out where most of the travelers had come from or whither bound. Some mature to old men in one group carrying packages of what most likely were plumes, no doubt used in dancing, had come from the Fore country. Several parties were from the Gimi (they called it "Dimi") or going there. At my point the people of a village beside the road were surly and would say nothing in either pidgin or place talk. The only unfriendly people I have seen on this trip.

Tonight there is feasting in camp. A pig was bought this morning. It weighed 40-50 lbs. dressed and cost two inferior kina shells (gold-lip pearl shell).

Thursday, August 27. Last night was very wet, and the clayey surroundings of our resthouse are unpleasantly sloppy and muddy. Mist most of day, clearing at camp level and below about 11 a.m. but staying on the mountain tops above about the 7000-ft. level. Mist down again and some rain about 1 p.m. No rain after that to dark.

Conditions at times last evening were very good for flying insects -- foggy mist, dark, and no wind -- and I had a very big catch at the light. Light hung in a round summerhouse sort of structure which graces the front yard of the resthouse. Soon struck trouble, however. A new light trap killing bottle, not used before, proved a dud and soon a seething mass of moths collected in it, and kept seething, and spoiling themselves as specimens. All other killing bottles supplied by Insects and Spiders for this trip have been good and strong. Some one made a mistake with this one. I have another in a box in Goroka, but that is 62 miles distant by mountain roads.

<u>Wednesday, August 26.</u> Generally overcast day, but the clouds were highest of the time, especially in early morning, when some distant peaks could be seen about north beyond Mt. Chimbori (Mt. Kerlogonis for one?) and which appeared to be Mt. Gautimul down on the Kanian border. First rain fell at 12:30 p.m., at a time when some of the upper parts of Mt. Kinkhol (called Khi-gong by the Dong people) were briefly in view. Light to heavy showers at intervals through the afternoon and into the night. And, of course, the usual thick mist.

Had a good look at the Kanian country to the west, traveling a good hour along the government footpath which leads in that direction. The path followed approximately the upper edge of the Kanian lands and the lower edge of the primary forest. This is where the people have their Kanian groves. Tonsies of second growth forest immediately up the steep slopes above the road. Below the road the all Kanian lands had mainly gone to half grass (principally <u>Pennisetum purpureum</u>). The forested slopes would be difficult to work. I don't stay in this locality will satisfy me.

I saw partly relics of the primary forest and could not recognize <u>Sonneratia</u> <u>lanceolata</u>. I was in a big timbered section in the hills where beeches may not occur. Two esp. of oaks recognized as isolated relics on the crests of spurs, one with known Tiaosons leaves the other with roundish foliage. The former collected in flower and fruit. Most of the trees were unknown to me. A common <u>Phyllanthus</u> <u>emblica</u> (?) may have been a species collected at 2000 m below Khunti, and a narrow leaved pink <u>Impatiens</u> did seem new to me. Obs. Gathered only 15 species.

The track I followed this morning carries a lot of native traffic going both ways. A fair proportion of the travelers met, especially the women and older men, knew no pidgin. Pidgin not made out where most of the travelers had come from or whither bound. Some carrying the old men in one group carrying baskets of what most likely were plumes. No doubt used in dancing, has come from the Tore country. Several parties were from the Khi (they called it "Khi") or going there. At my point the people of a village beside the road were curiy and would say nothing in either pidgin or place talk. The only unfriendly people I have seen on this trip.

Tonight there is freezing in camp. A pig was bought this morning. It weighed 40-50 lbs. dressed and cost two interior kina shells (mold-[illegible] special shell).

<u>Thursday, August 27.</u> Last night was very wet, and the clayey surroundings of the rest house are unpleasantly sloppy and muddy. Last night of day, clearing at camp level and below about 11 a.m., but remaining on the mountain tops above about the 7000-ft. level. Mist down [illegible] and some rain about 1 p.m. No rain after that, to date.

Conditions at times last evening were very good for trapping insects — foggy mist, dark, and no wind — and I had a very big catch at the light. Light hung in a round summerhouse sort of structure which graces the front yard of the restehouse. Soon struck trouble, however. A new light trap killing bottle, not used before, proved a dud and soon a seething mass of moths collected in it, and kept seething, and squashing themselves as specimens. All other killing bottles supplied by insects and spiders for this trip have been good and strong. Here one made a mistake with this one. I have another in a box in Oroka, but that is 62 miles distant by mountain roads.

Gono

Botanized along the road towards Lufa a distance of 35 minutes fast walking and down to an altitude of about 6200 ft. (1890 m.), most of the time in mist. Plants collected mainly of the ravines where the facies is of mixed rain forest. The two spp. of oaks noted yesterday grow commonly on the steep spur crests with a variety of other big trees, none of them known to me. No beeches seen. They may come in higher on the slopes.

Van not getting much in mammals. Today, however, the remains of a strange rodent with white feet and tail tip were brought in from traps. They had been partly eaten by pigs but there is a skull. John went in search of a reputed bat cave on the Gono Spur yesterday afternoon but failed to find it. His guide suddenly forgot the whereabouts of the cave ! This afternoon both John and Van made another try, with the same results. The formation of the spur is mudstone and a real cave is unlikely to occur. They followed an established trail along the comb of a high scarp which drops westerly to the Asaro Gorge. Distances about a mile according to Van. The natives tell of a big tailless animal which lives in the cave, raids their gardensm and eats pigs and babies. The people around here also believe in the little folk.

Friday, August 28. The best day of weather since we have been here. Cleary early a.m. except for the high mountain peaks. Top of Mt. Michael almost showed out of the clouds about 6 a.m. a little to the S of E from camp. Rain and mist intermittently from 1:30 p.m. Raining hard now at 6:30.

Visited the Wertzs after dinner and returned through thick mist about 11 p.m. Mrs. W. enjoys fun and it was largely an evening of kidding. I don't know what the God of the other missionaries would have thought of it.

Finished field work for this short term camp by collecting a few things already noted near camp. The local Castanopsis (which may be small-fruited C. junghuhnii) etc. Most interesting was a very tall Gulubia scattered on the grasslands as a forest relic trunk swollen about the middle like a species I collected above our 1200 m. camp in Dutch New Guinea in 1938 and still undetermined. Two days ago in a gully strip of relic forest I saw a tall Areca of the densely spicate kind which local natives said "jumped up nothing," meaning it was not planted there. I have seen bunches of the same species of betel-nut carried by men in this locality.

Van has nine species of mammals for the same camp including a small mousey looking phascogale new to the collection. Good specimens of the strange rat were trapped last night.

Saturday, August 29. High dense overcast at dawn and mountain tops cut off by the darl clouds gave promise of early rain at Gono. The tents were very wet and we had to roll them on wet, clayey ground. Got away at 8:20. Little Ruth Wertz watched us packing and saw us off. Arrived at our new campsite on the NE slopes of Mt. Michael at 10:35. The camp has yet to be given a name. Road distance from Gono 18 miles. Altitude by aneroid today 6700 feet. Corrected altitude probably about 6500 ft.

Road generally in good condition after the rain except in the neighborhood of Lufa where the clayey surface had not been well stoned. Our relatively heavy vehicle cracked or broke a lot of the round-timber decking of bridges on

Lago

Ascended along the road towards Lara a distance of 35 minutes fast walking and came to an altitude of about 3200 ft. (1850 m.), most of the time in mist. Plants collected mainly of the savanas where the ladies do not wind rain forest. The bracken, of which indeed yesterday grew commonly on the slopes from forests with a variety of other big trees, none of them known to me. Lo cameras soon. Fog may come in afternoon on the slopes.

Van not feeling much in samarla. Lady, however, the remains of a stranger found with white feet and tail tip were brought in from traps. They had been partly eaten by ants but there is a small, along with in search of a reported bat cave on the Como. Our yesterday afternoon but failed to find it. His guides suddenly forgot the whereabouts of the cave! This afternoon both Van and Van made another try, with the same results. The formation of the mountains and a real cave is unlikely to occur. They followed an established trail along the crest of a high ridge which drops westerly to the Lago Gorge. Distance about a mile according to Van. The native tell of a big terrible animal which lives in the cave. Pains their medicine and eats dogs and people. The people around here also believe in the little folk.

Friday, March 28. The best day of weather since we have been here. Clear early a.m. except for the high mountain peaks. Top of Mt. Michael almost above out of the clouds about 6 a.m. A little to the S of M from camp. Rain and mist intermittently from 1:30 p.m. Raining hard now at 6:30.

Visited the Vreas after dinner and returned through thick mist about 11 p.m. Mrs. B. says Van are it was largely an evening of fighting. I don't know what the God of the other adventures would have thought of it.

Finished field work for this short term camp by collecting a few things around the near camp. The local centipede (which may be small-footed C. [illegible]) etc. Most interesting was a very tall Guinea scattered on the grassland on a forest path swollen about the middle like a species I collected above our 1500 m. camp in British Guiana in 1933 and still undetermined. The days are in a gully strip on public forest I saw a tall green of the mercury estimate land within local native said "jungle in nothing." meaning it was not planted there. I have seen bunches of the same species of betel-nut carried by men in this locality.

Van has nine specimens of marsupials for the same camp including a small mouse looking phascogale new to the collection. Good specimens of the strange rat were trapped last night.

Saturday, March 29. High dense overcast at 7:30 and mountain tops cut off by the early clouds. Rain [illegible] at 8:30. Left camp at 9:00. Boys the tents were wet and we had to roll them on wet. Heavy ground. Got away at 9:20. Little much trouble watching us packing and we got. Received at our new campsite on the Mt. Michael at 4 p.m. Arrived at 10:35. The camp has yet to be given a name. Does distance from Como 18 miles. Altitude by aneroid body 6700 feet. Corrected altitude probably about 6500 ft.

Road generally in good condition after the rain except in the neighborhood of Lara where the clayey surface had not been well stoned. Quite relatively heavy vehicle cracked or broke a lot of the round-timber decking of bridges on

Gono-Kimi Creek

the way out, and the damage had not been mended. The natives are required to maintain the road, doing the necessary work one day a week. In this area the roadwork day is Saturday, but we saw no work being done. The patrol officer in charge is away down in the beack country, of course.

Mist during the first part of the journey prevented my getting a good view of the forest. However, beech trees definitely appeared at 5346 miles (speedo at Gono 5338) and their appearance is so striking that I could scarcely have missed them in the mist. There was no mist where the beech trees began. I got the impression that the climate there was drier or less misty than at Gono. The beech forest appeared on the Lufa side of the high point on the road. It continued above the road to Lufa and apparently all the way to our present camp site.

Conditions around here are definitely drier than at Gono. There had been recent rain all the way, but very little on the secondary grasslands between the new camp and Lufa. I think this camp will be much less rainy than Gono.

Most of the considerable job of establishing a bush camp has been completed. Work fly and boy's fly, sleeping tent for Van and John, working and sleeping tent for me, kitchen, two latrines and a bathhouse. Nine local men and small boys who came to gawk were put to work, and kept moving, by John and the kitchen lean-to and our very rustic smallhouse and house washwash are their work. They were a willing lot and seemed well satisfied with payment of a stick of tobacoo and sheet of newspaper each. A stick of trade tobacco is worth one shilling or about 12 cents at trade price. Our present stock cost us nothing. We have a residue of two caddies (64 lbs.) which the Department of Forests gave us for Mt. Wilhelm. Government does not pay the high import duty which everyone else has to on tobacco and it costs them only about 6/- a pound.

Sunday, August 30. So far my guess about the different weather pattern here has been right. This has been the sunniest day we have had for weeks but for the brief stay we had in Goroka. High broken clouds some of the day, but no rain. A small sprinkle about 11 last night. The wind comes over a gap in a spur ridge approximately east from camp. Deflected SE wind no doubt.

While my boys were fixing work benches in my tent I did some insect hunting, accompanied by a horde of small boys and youths. Most of my following wore at least a score of pigtails, the smaller the boys the longer the tails, and all stank strongly of stale pig grease which they rub on their bodies. They carried bows and arrows and went in hot pursuit of any small bird that showed itself. Too much wind for good insect collecting, but I caught 10 species of butterflies and three of damselflies.

Late in the day we were visited by Missionary Harold Sellars of Faith Mission, who is establishing a new station at Havakeveta (not sure of the spelling) near Lufa, and Cleon Laughlin, whose station of the same mission is between here and Lufa. About half a dozen fair-haired children, too. Sellars told me that the various missionaries of their organization have a good deal of independence. His special interest is in making the natives literate in their own language. He is concentrating on the young men of about 18-26, who have more feeling of responsibility and are more eager to learn that the small boys. Also feels that the people must be given opportunity to improve themselves economically and is trying to find some specialty crop which they could grow for sale. Coffee may be

the way out, and the damage has not been minimal. The motives are required to maintain the road, doing the necessary work on the way a week. In this area the roadworkers is Saturday, but we saw no work being done. The patrol officer is always in his car in the beach country, of course.

During the final part of the journey prevented by obtaining a good view of the coast. However, occasional breaks definitely improved as traffic miles appears at Cono Hill and their appearance is something that I could accurately have chosen then in the mist. There was no track where the beach lower began. Very are surprised to find the climate edge was hilly or less nasty than at Cono. The beach forest is spread on the lower side of the hill at points on the road. It continued above the road towards and apparently all the way to our property on the side.

Quantities spread here are definitely drier than at Cono. There and been present rain recently, but very little on the ridge. Pressalunda between the low hills and the sea. Possible life is very well behind Lion Bailey Star home.

Much of the remainder job of establishing a beach camp has been completed. Jill and Jon's fly, a pouring boat for fishing, working and sleeping tent for one, kitchen. The building is not a weatherboard. The local man and small boys who came to help were put to work and dug holes by hand and the kitchen lean-to and our very rudimentary sanitaries and the machinery are their work. They were a willing lot and seemed well satisfied with payment of a stick of tobacco and about of newspaper each. A stick of trade tobacco is worth nothing or absurdly cheap at trade prices. One person should not nothing. We have a residue of two cassettes of 10s. which the department of aborigines gave us. Mission. Government does not pay the mission report for which everyone else has to on tobacco and it costs them only about 6/- a pound.

Monday, August 29th. So far my guess about the difficult weather has been right. It has been windy. This has been the sunniest day we have had for weeks but for the brief day we had in Dorola. Mist or broken clouds some of the day, but no rain. Small arrival above it last night. Wind moves over a very large area and appears approximately east from camp. Still not to which to date.

While my boys were fishing some beauties in my tent I did some inspection. Accompanied by a horde of small boys and youths. Most of my following were lean a score of nationalities the smaller the boys the longer the hair. and all attack strongly of stale sea grasses which they rub on their bodies. They carried bows and arrows and were in not rounds of any small wild bird shooted itself. Jon went with for good inspect motivations, but I certain in spite of mutilations and dress of dangerlities.

Late in the day we were visited by a missionary driving Holland Sullens of Mitchell. He is making a new mission at Derwarvela (not sure of the spelling) near Mure, and Ulan Lengilin, where station of the same mission is setting here and Lutra. Administration Cair-Cairns building, too. Said we told us that the various missions are of their organization have a good deal of independence. He mostly interest is in making the natives literate in their own language. He is concentrating on the young men of about 18-20. who have some feeling of responsibility and are more aware to learn that the small boys. Also feels that the people must be given opportunity to improve themselves economically and is trying to find some methods. Pros which they could press for sale. Coffee may be

over planted in the highlands; the peanut market is too erratic. Phonetics used in instruction.

The local language is Iagara, which in five dialects is spoken by the people from Kami to Lufa. The small stream we are camped on is called Kimi, so this will be Kimi Creek Camp.

Monday, August 31. Our missionary visitors of yesterday forecast two or three days of good weather after yesterday's wind, which was strong out in the valley. John therefore decided that, if the weather looked promising at four this morning, he would climb Mt. Michael with my collecting boys.today. The weather looked doubtful to me, but the party set out in the Land Rover at 5:40, just as day was beginning to break. The day has been overcast, with very little sun, and occasional showers after 11:45 a.m., and the upper parts of the mountain have been lost in cloud every time I have walked to nearby vantage points to view it. Our party has not returned at 5:35 p.m.

Spent the day in and near camp, partly because of some anxiety that numerous visiting natives might get out of hand. There most have been a hundred or more of them at times, and they were most unruly, some of them insolent, and a few of them truculent and provocative in their behavior. One young strutter, with an axe on hisshoulder, calmly reentered camp and strolled through it after I had cleared out the crowd. At least 7 luluais (government-appointed chiefs) appeared during the day, all friendly but inept and without authority or unwilling to exercise it. Most of the men carried axes or bows and arrows. They took no notice of railings we put up to keep them out of camp. I cleared them out time and again, only to find them back in again after a short time, watching Van at work, surrounding the kitchen, and making a hell of a din. After my last excursion out of camp I found as many people inside as ever, and one insolent young fellow lying asleep, or feigning sleep, in the middle of the grassy space between the tents and flys. They kept outside after that. An anachronism about the whole thing is that the people turned up, ostensibly to work on the road as a weekly routine under government orders. The women carried the stones while the men made nuisance of themselves.

Tuesday, September 1. A fine, sunny day with strong breeze from the east (deflected SE).

May day spent in camp, preparing the big collection which was made on the mountain yesterday. The party returned to camp at 8:15 last night, John having been invited in by the Sellars for a cup of tea after he got down from the mountain. Some details of the climb:

Started up spur from Sellar's mission 6:30 a.m. with six small boys as guides.
Top of conspicuous steep knob 8:15, 10,225 ft.
Bill McSeveny's camp spot 8:45.
First alpine grassland 9:20, 11,000 ft.
First summit (yellow air marker on ground) 12:45, 11,900 ft.
True top 1:30, 12,125 ft.
Track went in and out of stunted timber from 11,000 ft. to top of the marker peak, thence on grassland to top of true peak. Timber goes to within 30 ft. of top of marker peak. In misty conditions timber was not in sight from top of true peak.

Wind Creek

over planted in the highlands the peanut market is too erratic. Tomatoes
need no instruction.

The local language is Zapara, which in five dialects is spoken by the
people from Sand to Zuma. The small stream we are camped on is called Wind,
but Dillo Wind Creek here.

Monday, August 21. Two alcoholic visitors at yesterday's fiesta, two or three
days of good weather after yesterday's wind, which was strong
out in the valley. John Dimmerle thought that, if the weather looked promising
at four this morning, he would climb to Michael with my collapsible boys, today.
The weather looked doubtful to me, but the party set out in the land rover at
5:30. That was day was beginning to break. The day has been overcast, with
little sun, and occasional showers after 11:45 a.m., and the upper parts of the
mountain have been lost in cloud every time I have looked to nearby vantage
points to view it. Our party has not returned at 7:45 p.m.

The day in our base camp, partly because of some unlucky, but
numerous visiting relatives right out of hand. There have been numerous
groups of them at times, and they have run the gamut of their kind, and
a few of them truculent and uncooperative in their behavior. One young arrogant
with an air of disconsolate, easily resentful demand and attempted threats if he
that cleared out the crowd. At least 3 Indians (government-supplied guides)
appeared during the day, all friendly but tired and without authority or un-
willing to exercise it. Each of the men carried axes or bows and arrows. They
took on notice of willingness but up to keep them out of camp. Cleared them
out time and again, only to find them back in again a half a short time, working
from the work, accompanying the children, and making a hell of a din. After my lac
exception out of camp I found as many people inside as even, and one Indian
young fellow lying asleep, or feigning sleep, in the middle of the trampy across
between the tents and fire. They kept outside after that. An anthropologist
who which dining in back the people turned up, ostensibly to work on the road as
a weekly routine under government orders. The women carried the women, while the
men made mischief of themselves.

Tuesday, September 2. A fine, sunny day with strong breeze from the east
(Matlacoto).

My day spent in camp preparing the air collection which was made on the
mountain yesterday. The party returned to camp at 8:15 back night, John having
been invited in by the Indians for a cup of tea after he got down from the mountain.
Some details of his climb:

Started up camp from camp at 4:45 in mission at 5:30 a.m. with six small boys as guides.
Top of conglomerate above km. 8115, at 10,275 ft.
Hill recovery's camp spot 8:4.
First alpine grassland (X). 11,000 ft.
First stunts (yellow) all marker on ground) 12:45. 11,000 ft.
Pass top 1:30. 12,125 ft.
Trees went in and out of stunted shrubs from 11,000 ft. to top of the marker
peak, thence on treacherous to top of true peak. Timber came to within 30 ft.
of top of marker peak. In many precipitous timber was not in sight from
top of true peak.

Kimi Creek

A Pseudocheirus cupreus was caught in the alpine grass by a dog belonging to one of the guides, and badly mangled. Tobram, a boy of Van's who accompanied the party, mainly to carry botanical specimens, picked up on the grasslands a skull of Hyomys. Six photos were made on top by John.

The collection contains the stock plants of the alpine grasslands of New Guinea as regards genera (Agrostis, Aulacolepsis, Deschampsia, Kelleria, Styphelia (2 spp.), Potentilla (2 spp.), Ranunculus, Euphrasia, Trachymene (2 spp.), Gentiana, Astelia, Carex, Rhododendron, Hypericum, etc.). A tree-fern, of which only three plants were seen, is what I am calling Cyathea bakeri (also collected by me on Mt. Wilhelm and Mount Wilhelmina. The upper part of the subalpine forest is described as low and stunted and 18-20 ft. high. Surprisingly, Podocarpus compactus is not present, or was not seen, the only conifer collected being P. aff. brassii, of which only one example was seen according to John. A Xanthomyrtus was collected at 9500 ft. The woody plants and some of the herbs were well collected, the grasses poorly. The gathering must be regarded as a sampling of the flora of the alpine and subalpine, nothing more. The particular weakness of this kind of collecting is that it gives no understanding of the structure, zonation or dominance of the forests. Above altitudes are by uncorrected aneroid and are reckoned perhaps 200 ft. too high.

Early in the afternoon Patrol Officer Jock Aitkin of Lufa called in on his way to Goroka for a staff conference held annually. Jeep was sent out to meet him as Lufa has only a motor bike for road transport and it is out of action. Jock returned Saturday from his long patrol towards the border from Gono. Long, skinny Scot with a clear girlish skin but anything but girlish in other respects. Says that SDA Medical Missionary Barnett's mission to the border country is not so much to give yaws shots as to head off the importation of pigs from the Chimbu. The border people, recently brought under control, are a miserable lot, very poor in pigs, which they are starting to bring in from outside. The "seven days" regard this as very bad and propose to fly in goats to an airstrip soon to be built. It would appear that goat flesh and poultry are not forbidden food for this brand of Seventh Day Adventist.

Wednesday, September 2. Strong wind from the east blew all night. Same until late today; some cloud but no rain.

John (who went to Goroka late yesterday) returned at 10:30 a.m. with John Womersley and his boy Nima, who will spend a week with us. Had a spare tent rigged for John, and he brought a fly in which to work on his plants.

John brought further news of a great project of the U.S. Fruit Co. in exploration for wild bananas and native cultigens throughout the Pacific. Plans are vague according to John. Brandeis, who collected sugarcanes in New Guinea in 1926, arrives soon to begin the program. Ochse, who it seems will be in overall charge, comes out later. Ochse is old now; Brandeis must be getting on. Another item (I had forgotten this when we were on Mt. Otto): Lane-Poole the forester climbed Mt. Otto from the Ramu Valley in 1923 or 1924. Conditions were cloudy, otherwise he would have discovered the Central Highlands 10 years before Mick Leahy. Lane-Poole's camp was later (in the Ramu) raided and his collections lost.

Kimi Creek

Thursday, September 3. Less wind and less cloud today. Fine, and after so much murk, it seemed hot.

At last completed the processing of the 122 numbers of plants which were brought down from the mountain. One of the most interesting from 10,00-11,00 ft. was a small-leaved Nouhouysia, the third species of this controversial genus for the trip. Have preserved materials for anatomical study at Harvard.

Did some botanizing down the road in the afternoon, with Womersley for company. Mostly things from gullies in the beech forest and nothing very exciting. John climbed to about 7-8 hundred feet above camp this morning and describes the forest encountered as Castanopsis-Nothofagus Forest. There is Castanopsis about road level but the beech (N. perryi, according to John) ~~is~~ is major dominant.

Friday, September 4. Light rain began at 5 a.m. and continued through morning all but a break between 10 and 11. Afternoon almost constantly rainy; rain heavy at times. No sun all day. Heard aircraft over the Goroka valley, so this perhaps is local mountain weather. A real wet day.

Did some botanizing close to camp for nothing special except for a fine big bell-flowered pink Vaccinium climbing high in Beech Forest. John Womersley calls it Agapetes moorhouseana (of mts. of NE Queensland), but I'm sure he is mistaken.

John's time is short here as he has to go back to Lae on Wednesday. Hoping for better weather, he, Van and John Collins left in the rain at 5:20 p.m. outfitted for an overnight stay on Mt. Michael. They will sleep at Lufa tonight, after dinner with the McSevenys. I sent my boy Soni with the party to collect plants.

Saturday, September 5. The rain continued until about 2 this a.m. Early morning misty with sprinkles of rain. Later some sun; dull afternoon but no rain. The mountain above about 8000 ft. under cloud all day.

Botanized along a prominent spur ridge which runs out to the NW (approx.) but work on specimens delayed my getting out and time in the field was short. Some good plants collected where a pathway gave a view into the primary Castanopsis-beech forest. A Daphniphyllum very different from the Mt. Wilhelm spp.; a very small Phaleria with thick, puffy white flowers pink inside, etc. Big area of tall, apparently undisturbed beech forest above the cutover aera above the road.

A missionary who dropped in a day or so ago said that since the opening of the vehicular road to Lufa in 1946 the natives have done a lot of pitsawing of conifers for sale to white men who drive out from Goroka. Supply said to be much depleted now, especially in podocarps.

Missionary Sellars, returning from Goroka this afternoon, told of heavy rain beginning at Goroka about 4 p.m. yesterday and continuing through the night. It is fine in that valley today.

Kimi Creek

Sunday, September 6. The usual mist in early morning soon clearing and for the most part a sunny day in Camp area; some sprinkles of rain after 2:30 p.m.; strong SE wind. Upper levels of mountain under cloud, so far as I observed, except for a partial clearing up to about 8:15 a.m.

Botanized on the spur of yesterday, following it to its end in the direction of the Asaro Gorge. Flora poor except for ferns, and these for the most part obtainable only in short series for the collection. Too much disturbance by man and pigs; track very muddy where the ground was yellow clay. Most interesting plants were a very big, broad-leaved Elaphoglossum and a terrrestrial Hydnophytum. The latter occured in several places on the narrow ridge crest and probably had fallen from trees. A Myrmecodia and an epiphyte-type Lycopodium were found close to one of the hydnophytums.

Van's bat net in a nearby gully in the forest, left rigged when we went upthe mountain, yielded 3 Syconycteris yesterday and another this morning.

For a remote road, there was a surprising amount of motor traffic today. Two vehicles from Goroka direction, three from Lufa, not to count the noisy motor bike of young Harold Sellars.

Monday, September 7. Foggy early morning; broken overcast most of day: light rain between 2-3 in afternoon.

The mountain party returned about 7 o'clock last night, having camped at about 10,100 ft. (corrected) Saturday night and gone to the summit yesterday morning. Some notes on the trip by Womersley, re altitudes and records of previous visitors to the summit, are appended herewith. At least some of the early climbers of the mountain left their names on rocks of the summit, the earliest being (cf. Womersley) "1-5-41. Neilsen & Robertson, Mt. Michael, 13,000 ft." The only other party to leave an altitude record was "27-6-54. Bridges, McGrath, Thyer, Zachar, 11,800 ft." The average of 4 aneroid readings by our party (including one by Collins on his first ascent) is 12,065 ft. If, as I think, our instrument is reading about 200 ft. too high, the altitude of the main peak is somewhere around 11,900 ft. The only prominent rocks on the summit ridge are on the small summit peak. Van considers 2 grassy knolls beyond the supposed summit peak to be about as high.

Womersley considers all the alpine grassland of the summit of Mt. Michael to be man induced, by fire. He bases this opinion on fire-charred forest relics and the absence of Detzneria, Papuapteris, and grassland tree-ferns from the flora. Detzneria can be regarded as a local endemic known only from Mt. Sawawaget and Mt. Wilhelm. Papuapteris is not known from as low as 12,000 ft., there are tree-ferns on the grasslands of Mt. Michael.

I have about another 60 numbers from the upper parts of the mountain, collected mainly by my boy Sona. A few spp. new to the collection; mostly plants of which I had only short series from the first collection.

Tuesday, September 8. Threatening morning but with some sun later; misty rain some of time. Very heavy rain between four and five in afternoon.

Kimi Creek

Womersley and I collected along the logging roads of Thick in the beech and Castanopsis forest above the road. I went to about 500 ft. above camp level, to the end of one of the roads. Forest badly smashed by the logging operations. Trees cut mainly Nothofagus. Saw one big red-barked Dillenia on the ground. Much good timber has been cut down, cut into logs, and left lying in the forest, apparently for months.

Wednesday, September 9. The finest day since our arrival here. Sun and broken cloud, and a good bit of wind. No rain. Temperature in shade in front of my tent in the middle of the afternoon was 88 F.

John Collins took John Womersley to Goroka after breakfast; Womersley returning to Lae by the Wednesday charter flight of the administration. Taking 7 bundles of my herbarium material to Lae for storage.

Collins returned late in the afternoon with, as unexpected visitors, Dr. Morris Rapson, Chief, Division of Fisheries in Port Moresby and his 14-year old son Philip. The Rapsons, with John Barrett, entomologist, had just returned to Goroka from a 6-day visit to the lakes on Mt. Wilhelm. They flew in to Keglsugl on two Cessna charters, stayed at Dengalagu Mission, went next day to the lower lake where they occupied our camp, spent 4 days there. Two days of misty and rainy weather, two days fairly good. Object was to inspect the two lower lakes. Had a 10-man rubber raft (bomber equipment) weighing 45 lbs. Sounded both lakes and collected samples of aquatic life and bottom mud. Deepest part of lower lake 11½ fathoms; of upper lake 27 fathoms. Temperaturs: 53-55 on surface, less than 2 degrees lower at depth; upper lake slightly colder than the lower; temperature at outlet stream of lower lake considerably higher than lake itself. Rapson feels there ought to be a permanent camp built by govt. at the lakes for the accomodation of the frequent visitors. If fish introduction is made, he is in favor of some kind of salmon as the most profitable producers of flesh for size of the fish. Barrett collected insects and a few plants (plants for Lae).

Rapson was in the Antarctic with the Discovery II in 1938. Has been in New Guinea since 1948.

Thursday, September 10. Another fine day; little cloud; not so windy.

Spent the morning botanizing up a spur a bit on the Lufa side of camp. All primary Castanopsis and Beech forest, with a sprinkling of an oak and other trees. Not much to collect except ferns, and most of these obtainable only in short series. Much disturbance by pigs. These Central Highlands carry too many unwashed, stinking people, and are one vast pig run up to the higher elevations.

Rapson, driven by John in our Land Rover, departed for Goroka soon after 2 o'clock with the intention of trying to net fish in the Kami and the Bena Bena en route. Has a minnow seine and a bigger net with him. So far as I know (Rapson seems uninformed on the subject) there is only one species of fish known from the Goroka valley - an eel-tailed catfish which is also in the Wahgi. Rapson's interests are more in the production or exploitation of fishes than biological. For example, he has been sampling fish foods in New Guinea waters for years but has never sent materials to specialists for identification. He can not identify the things himself. In fact he appears quite one-sided in his knowledge.

Tidal creek

Generally and a collection along the lowlying reaches of Tidal in the beach and Centenonis forest above the road. I went to about 400 ft. above sea level to the end of one of the roads. Forest badly wrecked by the logging operations. Trees cut mainly hemlocks. Saw one big peg-barked chestnut on the ground. Good good timber has been cut down, cut into logs, and left lying in the forest, apparently for months.

Thursday, September 9. The fifth day since our arrival here. Sun and cloud, and a very bit of wind. Mercury temperature in shade in front of my seat in the middle of the afternoon was 66°.

John Collins took John Generally to Jacobs after breakfast, departing returning to us by the Wednesday morning flight of the Grumman. Taking a bundle of my herbarium paper left to dry for storage.

Collins returned late in the afternoon with, as unexpected visitors, Dr. Gordie Hobson, Chief, Division of Inshore Fisheries, Toronto, and his 14-year old son Frank. The Hobsons, with John Generally, accompanied, and just were to Jacobs from a 6-day visit to the lakes on Mt. Whitney. They had to be ferried on two Beaver aircraft. Stayed at Georgian Mountain, went next day to the lower lake where they camped out, spent 4 days there. Had days of rain and rainy weather. Two days fairly good. Poised one to 1 pound fish in both lakes. Had a 10-man rubber raft, wooden equipment, and fishing tackle. Both lakes are collected as acidic lakes by acidity and pH. Lower lake pH of lower lake 4.1, Summit lake 4.7. Temperature 5-6 degrees lower than 2 degrees lower at depth; upper lake slightly colder than lower; temperature at outlet stream of lower lake considerably warmer than lake itself. Hobson feels there ought to be a perch-mouth cross with lake trout. Lake for this accomplishment of a great variety of fishes. It has introduced lake trout, he is in favor of introduction of salmon as the most profitable producers of fish for sale and use. Garnett collected chipmunks and a large lizard (?) for lab.

Hobson was in the Jacobsville with the discovery in 1929 of the bones in new lakes since 1941.

Friday, September 10. Another fine day; little cloud; not so windy.

Spent the morning tobogganing up a gully on the left side of Jacobs. All hardwood Canadian forest, with a predominance of sugar maple and other trees. Took most to collect except fungi, and most of those obtainable only on a very cold morning. Large infrequence of plant. These Ontario highlands carry too many unusual, relictual species, and are one vast pin run up to the atmosphere.

Hobson arrived in John in our lake yesterday. Departed for Toronto after a [illegible] with the intention of trying to get fish in the lake and the area from [illegible] minnow seine and a dipnet with him. So far as I know [illegible] from the Jacobs valley — an ex-[illegible] Hobson's laboratory and one in the connection or distribution of fishes than [illegible]. For example, he has been searching for [illegible] for years and has never seen [illegible]. He can not identify the things [illegible]. In fact he appears quite [illegible] in the [illegible] lake.

Kimi Creek

Missionary Wertz, carrying a very sick native woman to Goroka this evening, says that the weather at Gono improved about the time we left and has been good since then.

Friday, September 11. Third successive day without rain, although heavy thunderclouds backed up in the afternoon. Mornings are always at least lightly overcast up to about 8 o'clock.

Botanized in two gullies back towards Lufa in the primary forest for good results. The gullies are fairly rich in ferns and mosses; there is not much else to be collected. Added to the collection were a Dillenia common as a substage or subcanopy tree mostly in gullies. Another common tree of this category, a Garcinia, is with young fruits and without flowers and therefore not worth collecting. Canopy trees are few in this forest apart from the dominant Castanopsis and Nothofagus.

Thought of breaking this camp and returning to Goroka on Monday, but today we hear that Monday is a holiday and we will stay here until Tuesday.

Saturday, September 12. Day mostly overcast; heavy rain from a thunderstorm 2-2:30 p.m. followed by showers. This is all SE weather.

Drove down the road to about ½ mile past the sawmill to smaple the forests. Nearly pure Castanopsis forest there, with scattered, mainly small, hoop pines in gullies. Relic kauri pines up the slopes and below the road in gardens. Up the creek from the sawmill an oak (Lithocarpus with leaves gray below) is commonly mixed with the Castanopsis. A sprinkling of other plants not seen at camp level.

It is difficult to get reliable information in this country. So many people speak with confidence on subjects they know little about. I have it recorded somewhere that the Guruka sawmill began operations about 4-5 months ago. Another informant at the mill today, who worked there for 8 months while the logging roads were being opened and the mill built, says the mill went into operation in August 1958.

There has been nothing exciting to report in mammals for some time. But some two or three evenings ago an Otomops was shot, flying very high and straight, at camp. A very rare bat. This morning Van and John started trying to get it at daylight; about a dozen shots as the day grew light, but no further bats.

Sunday, September 13. No sun at all today, but only a few sprinkles of rain. The usual clear night clouding sometime after midnight.

Sent my boys into the field this morning, mainly to search for ripe palm seeds for the Fairchild Tropical Garden, while I worked on collections in hand. The boys failed on the palm seeds but brought in rather scrappy material of 7 plants new to the collection. I have from this camp 392 numbers of plants including 33 bryophytes and 2 lichens; sheets of vascular plants 1755. Consider this good for a stay of a day over two weeks. Collections were boosted by plants collected on Mt. Michael's upper levels. The forests of the camp area are more disturbed that appeared at first sight. The fine forest dominated by Nothofagus has been logged out on the slopes above the

Pilot Diary

Miami Diary Series. Carrying a very objectively woman be Dorothy this evening, says that the weather is done improved about the time we left, and has been good since then.

Friday, September 11. Flew successively without rain, although heavy thunderclouds bedded up in the afternoon. Morning are always as lazes lightly overcast up to about 9 o'clock.

Scattered in two valleys back towards Lara in the primary forest for good results. The valleys are rainy; fish in Terra and season; more to do much, also to be conducted. Also to see collection were a Philodendron as a subshrub or climbing bromeliad in small. Another common shrub is cuspidaria, a Lycopodia. Is also found Aristolochia and Flowers and there are red world collecting. Orchids seem are few in these. Green and the dominant Gesneriaceae and Melastomaceae.

Thought of breaking this day but decided to wait for to-morrow Monday, but only we have this morning in a holiday and we will stay here until Tuesday.

Saturday, September 12. Day mostly overcast heavy rain from a thunderstorm 2-2:30 p.m. following by showers. This is all the weather.

Drove down the road to about a mile and the end. Is small it is simple the forests. Mainly rain Gesneriaceae found there, with acrocerus, mainly small moon vines in valleys. Solid forest close up the drives and below the road in gorgeous. On the great from the small an old Lithocarpus with leaves grey below) is commonly mixed with the Gesneriaceae. A small list of other plants not seen at Cerro Tuna.

It is difficult to get reliable information in this country. The people areas with indifference or actively stay from later in about. I have it reported here areas which the Giddy, as well be connections about 1-3 months and. Supply information as this will bring me well [illegible] for 3 months until the closing roads were [illegible] and [illegible] with [illegible]. Anything work into condition in August 1925.

There has been nothing exciting to report in Amazonia for some time. Only one or three evenings ago an Indiana man came, [illegible] certainly, as game. A very rare bird. This morning [illegible] and [illegible] to see it at daylight; about a dozen people [illegible] raw light, [illegible] for [illegible].

Friday, September 13. No sun at all today, but only a few sprinkles of rain. [illegible] clearing clouding [illegible] after midnight.

Sent my boys into the field this morning, mainly because for rice [illegible] Terra Firma forest. Willie worked on collection in hand. The boys failed on the plain meets but brought in rather scanty material only plants new to the collection. I have from this one 392 numbers of lichens including 33 bryophytes and 2 lichens; albeit of vascular plants 2275. Consider this good for a day or a day over two we. Collections were backed by plants collected on Mt. Hiram's upper levels. The forests of the upper area are more distinct than appeared at first sight. The forest formed dominated by Lithocarpus has been lopped out on the ridges above the

Kimi Creek

motor road as far west as our camp, and the forest pretty well wrecked in the process. The young beech trees left will perhaps not have much of a chance to develop under the present open forest conditions and seral growths at this altitude appear slow. The forest gives way to induced grasslands not far below camp level. Besides the beech, the forest contains much Castanopsis, scatter-oaks, and occasional big trees of other kinds. In conifers I have seen only 3 spp. of Podocarpus, all subcanopy and one an undergrowth species; have been told that there were big podocarps but they have been cut out by native pit-sawers who sold their lumber to Goroka people after the road was opened two or three years ago. Have seen and collected two spp. of palms in this beech forest. Have collected one Pandanus sp. and seen at least two more, one of them a great tree a good 100 feet high which bears big edible seeds (the fruitheads of this too immature to collect). Have 1 Freycinetia and have seen only 2 other spp. Have collected one fairly common tree-fern and seen only one other specimen of one other species. The forest is fairly rich in smaller ferns, also low epi-phytic orchids. It is not very mossy except in the deep ravines.

The camp has been exceptionally poor in insects. Weather mostly un-favorable for day flying things; have perhaps a dozen spp. of butterflies, 4 of dragonflies and two damselflies. Only one night gave a good catch at the lamp. The big factor against night trapping was perhaps a breeze funnelling along the road from either direction. We had only one foggy night, and that was when the big catch was made.

I do not as yet have details of Van's collections for this camp. For the two Mt. Michael camps herps collected were 911 (7 snakes of three spp., 98 lizards of 5-6 spp. (all skinks but one frilled lizard), 806 frogs of between 15 and 20 spp.). Mammals for the two camps total 136 specimens of 24 spp. The mountain yielded 4 mammals (species) new for the trip: Otomops, Antechinus (3rd. sp. for trip), a white tailed Rattus, and a Pogonomys or Pogonomelomys. There are sub-specific differences between the mammal populations of the Bismarck and Mt. Michael ranges. Total specimens collected by Van for the trip: mammals, 1489, herps 2810.

The natives of the Kimi Creek area were active in bringing in herps, especially frogs, which were easy to catch. They brought in few mammals other than common rats. I have not in recent years seen a more worthless lot of natives. Loud mouthed, lacking in the decency which allows another person some privacy, devoid of self discipline of any other kind, and stinking with filth. None of us will be sorry to leave this camp.

This Sunday and last we have been visited by a Koiari (Port Moresby hinter-land) native who is boxing for gold in the Asaro Gorge below camp. Today he showed me a sample of his gold in the bottom of a small bottle. The gold is dull grayish in color and in curious small smooth thin pieces with rounded edges, as if coarse grains had been hammered flat and then waterworn. Mixed with the gold were a few big specks of a bright silvery metal which I suspect to be osmiridium. The Koiari is working alone and not doing well. He proposes to return soon to his home country, where, he says, demonstrating with the first joint of an index finger, the gold comes in big lumps. White men have never found enough gold in the Koiari country to be worth working for long.

Kimi Creek - Goroka

Monday, September 14. Left Kimi Camp after an early lunch and arrived in Goroka at 3 p.m. Distance 40 miles. The Goroka Valley has had rain recently and looks green, especially where the old grass has been burned. A heavy flowering was noted in the scattered young coffee plantations along the road. On the open grasslands at 5300 ft. in the Kimi end of the Goroka Valley, we stopped to collect a big Phaius of which about a dozen plants grew scattered over a small area. This showy orchid has brown, white and purple, delicately fragrant flowers. Ripening capsules may yield seeds to send to the U.S.

Tuesday, September 15. Day spent in reorganizing collecting supplies (some to take to Kainantu, surplus back to Lae) and packing specimens. Got some letters written. Posted a package of palm seeds to the Fairchild Tropical Garden and a fourth lot of fragments of Ericaceae to Sleumer at Leiden for his revisional studies. Have sent Sleumer 83 specimens to date.

Van and I to dinner with Inspector Frank G. Hoeter, OIC Police in Goroka. Frank an American by birth (Pago Pago) and a naturalized Australian. Has been in TNG 12 years, stationed at Port Moresby, Samarai, Madang, etc. Enthusiastic amateur naturalist interested chiefly in shells. Offers to collect insects and I will give him two spare killing bottles.

Hoeter gave what I feel is the only authoritative information we have on the annual beetle visitation. He called up one of hos corporals to give information first hand. The beetle swarms seem to occur only in the Adaro Valley from about Bena Bena westwards. They are not in the Lufa or Waterbung valleys. Swarming takes place annually about time of the September moon. Begins with the first good rain, resumes after the next few rains. There was a swarm in Goroka during last week; another, and the last, is expected any time now. Adult beetles are called MONA (morna) in the Mowomi language of Goroka, the larvae are URAFE. One trick in the catching by natives is to tether a female with a bit of string to attract the males. In the rush of collection (the flight lasts from about 4:30 p.m. to dusk) the native women slap the beetles on to their hair, where their legs become entangled, and a good load is thus collected and carried.

Wednesday, September 16. Enjoying the weather here at Goroka. This morning at 11:30 temperature was 78 F.; now at 6:30 p.m. it is 73. Partly cloudy; some little rain last night.

Shipped to Lae for storage at the Dept. of Forests 12 boxes, etc. of specimens and surplus collecting supplies weighing 534 lbs. What we will take with us to the Kainantu area in the morning is loaded on the Land Rover and trailer.

Called on Acting District Commissioner S.M. (Mick) Foley to talk about the Kainantu sub-district and got a pretty clear picture of what to expect in the Okapa area. Also a letter of introduction to A.D.O. A.M. (Gus) Bottrill, OIC Kainantu. Foley was ADO Kainantu for several years ending in 1958, but there are new developments with which he is unfamiliar. For example a new coffee planting venture in the Arau-Karanka area on the Markham fall, an area which offers promise for us in good virgin forest and a report of caves in limestone.

Goroka - Kainantu - Okapa - Purosa

Thursday, September 17. Left Goroka 8:55 a.m. well laden on Land Rover and trailer with stores for three weeks, stocks of most collecting supplies for two months, and whatever else could be loaded on. Made stop at relic stand of Araucaria forest on the Dunantina River (5100 ft.) and on top of Compri Hill (6500 ft.) and arrived Kainantu Hotel 12:25. Altitude there 5650 ft. (all altitudes uncorrected). Distance 61 miles. Road in good condition; getting rather dusty in places.

After lunch we called at the sub-district office and presented to ADO A.M. (Gus) Bottrill a letter of introduction from ~~Mick~~ ADC Mick Foley. Bottrill very cordial. Has served in both Papua and this territory. Formerly stationed at Tapina in the Goilala country and has climbed Mt. Albert Edward. Met there Cadet Patrol Officer Gavin Carter, who is stationed at Okapa. Tall, clean looking young fellow with what will probably be, in time, a most ferocious moustache. Also Bill Balmain, a youthful chap of the Department of Mines who buys the gold mined locally by natives. Also there was an agricultural officer of whose name I have no record, and District Education Officer Gordon W.J. McMeekin.

When talking was finished it was too late in the day to do the 39-mile drive to Okapa so we put up at the Hotel Kainantu for the night. The owner Symons, had lost his manager (gone to Hollandia tu run the Yacht Club) and Mrs. Symons, big pleasant German women, was in charge. She had fired all the native staff a couple of days previously and was doing everything herself with the help of two very raw native boys.

Kainantu is pleasantly situated on the "Upper Ramu Plateau" in a basin-shaped valley drained by the main southern tributary of the Ramu River. The valley is nearly treeless except for casuarinas along the river, and the grass would appear to be burned annually. The result is clean green slopes, in contrast with the rough "pit-pit" (wild sugarcane) which characterizes the induced grasslands of the Goroka valley.

Friday, September 18. Left Kainantu at 8:40 a.m. after a final call at the sub-district office. Met at the office Dr. Zigas, New-Australian medico of the Administration who, with Dr. Carleton Gajdusek of the U.S. did the original research on kuru disease. Good clean type of young fellow, but very nervous in manner. Spoke of the work presently being done on kuru (the "laughing death" of the journalists). Virus infection, a suspected cause, has been pretty well eliminated. Genetical aspects are now being studied by a team from Adelaide University. Maa, one of the entomologists of the great Bishop Museum project on Pacific insects, is to begin an ectoparasite survey on September 25. A nutritional survey has been done by one Lucy Hamilton. Zigas (and apparently Gajdusek, who was here recently) are getting interesting results from metabolism studies. Kuru patients show a marked increase in amino acid, for example, indicating the presence of some poison. The incidence of kuru is 1-2% of susceptible population; it is much higher in women than in men. Kuru affects the Fore and some related peoples numbering about 20,000. Something apparently identical clinically has been reported recently from the Wabag area on the Western Highlands.

Nine miles out of Kainantu we entered forest at 6200 ft. Broken by grassy areas, this continued to 13 miles from Kainantu, where, near Sonofi (mission of some kind), we dropped into a narrow limestone valley bottoming at 6200 ft. Conspicuous jagged limestone outcrops at about 6350 ft., before Sonofi.

Guyana - Lethem - Dekka - Furone

Tuesday, Sept. 17. Left Lethem 8:55 a.m. with Lethem on land cover and
thunder with storms for the weather, blocks of rain
collecting and lies for two months. Only thereafter else could be loaded on.
Made stop at Rupin stand of Kanaima forest on the Kanaima River (5100 ft.)
and on top of Kanaima hill (6900 ft.) and arrived Kanaima hotel 12:25. Latitude
there 5°0 ft. (all distances approximate). Distance of miles. Road in good
condition; passing rather many in lines.

After lunch we called at the sub-district office and presented to the
A.D. (Mr. Griffith) a letter of introduction from Mr. Wick and Mr. Kenny.
very cordial. Also served in both cases and this territory. Necessary attitude
at Lethem in the Rupin country and has established. Albert Kenny. Mr. Williams
Court Patrol Officer, Kanaima, who is stationed at Karu. Left. Albert
Jackie young fellow with Mr. Wick and probably be in time. A work foreman
nowadays. Also Mr. Ralph Kenny, a young and one of the Government of Kanaima who
says the road ahead locally by motives. Also there was an agricultural officer
of whom here I have no record, and Mr. Kenny, District Commission Officer Lethem
Rupununi.

When building was finished it was too late in the day to go the 39-mile
drive to Dekka so we spent the total afternoon for the night. The owner
young, had lost his manager (Pedro Holladay) on the Kanaima (Mr. Williams)
Kenny. Mr. Williams, big dreamy German woman, was in charge. She had tried all the
native staff a couple of days previously and was doubting everything. Left
the hotel to two very few native boys.

Kanaima is pleasantly situated on the upper part of a long in a
basin-shaped valley drained by the main Kanaima building of the Kenny River.
The valley is nearly treeless except for savannas along the river and the
area would appear to be fairly healthy. The result is clear green also as
in contrast with the sound "bit-nite" (with mosquitoes) which characterised
Dunoad grasslands of the Corona valley.

Friday, September 19. Left Kanaima at 8:40 a.m. after a final call at the
sub-district office. Met at the office Mr. Williams,
Non-Australian member of the Administration Van, with Mr. Kenny (Kenny
of the U. did the original research on Kaim diseases. Good clean type of
young fellow, but very nervous in manner. Doing a very [illegible] being
done on him (the "lingering death" of the journalists). Virus in [illegible]
suspected cause, has been pretty well eliminated. Operations are now
being carried on at a town [illegible] Adelaide University. Has, moreover, [illegible]
of the [illegible] Kaimu projects on radio transmitter. Is to begin on motorcycle
survey on December 25. A nutritional survey has been [illegible] one [illegible] tradition.
Kaim (and apparently Kaimuse, who was [illegible] re-only) are [illegible]
results from [illegible] studies. Many patients show a marked increase in [illegible]
with, or equally, limiting the presence of some [illegible]. The population of
Kaim is 1-20 [illegible] population; it is much [illegible] in women than in [illegible]
Kaim [illegible] the [illegible] and some related peoples [illegible] about 20,000. [illegible]
Kaim [illegible] linguistic [illegible] has been [illegible] from the [illegible]
area on the [illegible] Kaimu.

Kaimu [illegible] of Kaimu [illegible] at 6200 ft. [illegible]
[illegible] areas, this continued to 13 miles from Kaimu, where [illegible]
[illegible] (and [illegible]) [illegible] into a narrow limestone valley [illegible]
[illegible] Kaimu [illegible] at about 6000 ft. before [illegible].

Kainantu-Okapa-Purosa

Forest was reentered at 16 miles from Kainantu but within the mile we came to its end on a grassy point at 7000 ft., from where we dropped into a largish grassy valley bottoming at about 6500 ft. At 23 miles a new loop road cutting off 3 miles of distance to Okapa brached to the left at 7000 ft. Following the new road, we reentered forest in about a mile and soon came to a rather recently established village community called Ofoena-Bamia at 7000 ft. Inspected this village; mission church in center of a collection of mean low huts; government resthouse fit for pigs; good forest all around. Much good forest to about Magi (Lutheran Mission native station) at 30 miles from Kainantu but saw no suitable place for a camp. Junction of the two Okapa roads 3 miles from Magi. About a mile from Okapa we picked up on the road European Medical Assistant ? Brannon. Arrived Okapa 12:25; 6650 ft.; 36 miles from Kainantu.

Lunched at the EMA's house, where Dr. Andrew Gray, Administration medical officer in charge of kuru research, was staying pending the completion of a house abuilding nearby. Gray a herring-gutted little man with close cropped moustache and clipped "English" accent, though an Australian and a graduate of Adelaide University. He favors the genetical approach in study of the disease (which Zigas says will require 10 years to prove or disprove). On the road out from Kainantu we had met a professor of geography of the National University of Canberra, driving back from a visit to Okapa in some connection with kuru, accompanied by an attractive woman student who is working for her doctorate on a land use survey in the Goroka area. Continuing after lunch on a road which goes ca. SW 18 miles to Purosa, we met another Land Rover with a Dr. Orex and a male medical student aboard, also on kuru research.

AURICHT

Much effort and money is going into kuru research. Some money comes from the U.S. National Institute of Health, and this seems to be administered by Gajdusek. The Adelaide team would appear to be working on Australian money. The extent to which the two teams cooperate is not plain to me. For example, Gray knew nothing about the expected arrival of Maa; Zigas is making the arrangements for Maa, who will camp in Moifa resthouse some few miles towards Kainantu from Okapa.

We left Okapa at 1:10 p.m. and reached the end of the road ar Purosa about 2:30. Entered forest 13 miles from Okapa, 6700 ft. and examined a possible camp site about 2 miles farther on. In another two miles or less (our speedo does not record fractions of miles) the forest ended at a newly established medical aid post. Beyond that a little was a mission of some kind, run by an American we are told, with unimpressive thatched living quarters and a fine big oval or circular, opensided church with high pointed roof reminding one of a chief's house in parts of West Africa. The missionary evidently a bit quaint; can't learn anything else about him from white who have mentioned him. A most unattractive government resthouse on grassland at the head of an open valley just beyond the mission. Turned back and inspected the medical aid post, which Gray had offered to us for a base camp. A neat and orderly establishment, but accomodations very limited. So we drove back to the possible camp site in the bush. Arrived there 3:15 and were under cover with two flys and my tent up before nightfall. There was mist in the tall forest of the camp area from ca. 2 o'clock on, but fortunately no rain. Some steep grades on the road; the Land Rover in low-low and with little to spare several times. Altitude at Purosa Camp 6550 ft. uncorrected.

Okapa-Purosa

Saturday, September 19. Light rain during much of the night. Sandflies troublesome, but not biting as hard as most, from sometime after we went to bed until after dawn. Bright day after early morning mist. Mist in the treetops again from about 2 p.m.; coming down to near the ground by 4:30.

All day spent in building a good, comfortable camp; living fly, boy's fly, tent for me to work and sleep in, sleeping tent for Van and John, spare tent for my plant dryers, kitchen lean-to, latrines and a bathhouse. Local natives helped substantially in this work. We are in the South Fore census area and one of the main kuru areas. We are out of the great populations of the Central Highlands. These peole are much quieter, quite well behaved as compared with the Lufa bunch, and the cleanest people we have been amongst since we came to the mountains. One notices the absence of the stale pig fat stench of the Lufas.

Most of the forest encountered between Kainantu and Okapa appeared to be beech forest. Here at Purosa, at least near the camp, some of the larger trees look like beeches in their fine straight boles and gray hard bark, but none of them that I have seen are beeches.

Sunday, September 20. Mist in the treetops until c. 8 a.m.; good sun until early afternoon then high overcast; steady rain between 4 and 5 followed by high mist.

Started field wotk with a walk back along the jeep road for a good mile. Tall primary forest all the way. We are in the best location for a camp in this locality. About ¼ mile back along the road an old patrol road branches off and disappears in a tunnel of forest in the head of a small valley. This should be an excellent jacking trail. Collected 20 spp. including a fragrant white violet on the roadside, a Begonia with velvety green and silver leaves, a most virulent stinging bush)Laportea), and a tall Pandanus called Yogi in the Fore tongue. Saw noch beech trees, and for that matter no Fagaceae at all. We are in a montane mixed rain forest in which species of Terminalia and Eugenia are prominent canopy trees. An extremely tall palm looks like the Gulubia collected at Gono, about 30 miles to the NW.

A few traps set the first night here caught two of the blackish Rattus niobe. Fortyeight traps out last night yielded ten rodents including a big brown Melomys new to the collection and another of the genus. A Pseudocheirus forbesi was jacked last night. Brought in today by a native boy was the first known female of Mayermys, of which only four males are known, all in the BM. A promising start. Had a number of native visitors during the day. Some of them said this was their Sunday and that tomorrow they will get out and do some hunting.

Monday, September 21. Early morning mist clearing before eight. Day mostly overcast; sporadic showers from noon on to c. 5 p.m.

Botanized down the road about a mile towards Purosa. At that point, on a prominent ridge crest, the prevailing mixed rain forest gave way to a small area of Castanopsis-pak forest carrying characteristic small woody plants in the undergrowth (Eurya, Acronychia, etc.). A nice lot of 24 spp. all told included a common red Rhododendron epiphytic high on the trees in rain forest. No canopy trees collected.

Purosa

Insects are coming in well to the lamp at night, and today I picked up over 40 specimens (mostly from the leaves of "tangat" (Cordyline terminalis) planted by the roadside. Many varieties of these plants grow along this road, also many kinds of Impatiens. Good collections of these and some other ornamental plants could be made by touring the motor roads on the Highlands.

Had as guests for lunch young Dr. ~~Orex~~ AURICHT and the medical student we met on the road on the way down here. The student ate no meat (good roast lamb) and refused tea and coffee; frail looking chap who might benefit by a few good full meals. They were going to Purosa aid post to start on a foot patrol of a week on the kuru project. Orex was more communicative than others we have talked to on kuru. Says there is a falling out between the American (Gajdusek) and Australian research teams. He follows the genetic theory and the student appears to be a specialist in genetics. A visiting professor (Bennett?) put forward a couple of years ago (or less) a genetic explanation of the occurrence of kuru which has won acceptance in Britain if not elsewhere. The Australian team is now busy in gathering genealogies with the idea that the occurrence of the disease can be predicted. A study also being made of aberrant cases. I understand that although the disease is practically always fatal, some recoveries may occur, certainly temporary relief from the symptoms. Laughing does not occur with the disease (New Guinea natives seldom laugh outright, anyhow), but it is accompanied by euphoria or an untoward sense of well-being accompanied by smiles for brief spells.

Tuesday, September 22. Rain resumed about 8 p.m. and came down steadily, mostly lightly, until 8 a.m. Little sun after that. Light showers from 2 p.m. on to late afternoon.

Forest very wet this morning, so I botanized down the patrol road close to the NE of camp. Got as much as I could handle within 300 yards of the motor road, mostly ferns and small plants of the rain forest undergrowth. Gully conditions prevailed and the forest carried a dense low herbaceous and soft wood undergrowth of Elatostemma, other Urticaceae, ferns of several species, the rugose purplish leaved Laportea collected a couple of days ago, Rubiaceae, etc. A fine-cut Asplenium climbed in plenty on the smaller trees. A very big Alstonia grew beside the path.

A note arrived from Gavin Carter, patrol officer i/c Okapa, asking that we help him to get to Kainantu on an urgent matter. John therefore drove up to Okapa after lunch and brought Carter down to Purosa to pick up a Land Rover which the kuru men left thre when they went bush yesterday. With Carter was Jillian Todd, friend of Mrs. Ruth Aurechs (Orex of previous notes, and spelling still uncertain). Tood is a trained nurse and Ruth expects a baby within a month. Chaperoning today was the New Ireland sergeant of police of Carter. The emergency, it transpires, is the shortage of food of some missionaries in the nearby Kukukuku country. Carter was driving in to Kainantu tonight to get stores. The strangest part of it all is that the hungry missionaries are of the Summer Institute of Linguistics (carrying Christ to the numerous peoples in their own language), whose base of operations is at Aiyura, not 10 miles from Kainantu. The SIL has personnel of about 200, and surely must have motor transport, at least near Aiyura.

Purpose

Purosa

Wednesday, September 23. I am so much behind with journal that this is being written two days late and weather notes would be too much a matter of memory to be reliable.

Botanized up the slopes from camp on trail cut by John yesterday. Easy going for the most part. This is the easiest locality as regards slope that we have been in since we came to the Highlands. Deep chocolate brown soil, with the stickiness when moist which denotes rich loam to the gardener, derives from mudstones like the strata of Gono. Went up not more than 500 ft. A dense substage and subcanopy prevented my seeing into the treetops most of the time, but the forest appeared to be still mixed rain forest. Rather frequent as a big canopy tree was a red-flowered Hibiscus. Noted in one place were the great elongate fruits (c. 5 in. long) of what appeared to be an Endiandra sp. My collection was mostly of ground plants and low epiphytes, none of them abundant in species. Included, as rarities were saprophytic Corsia sp. and Sciaphila sp., and the root parasite Balanophora sp. (the latter in male flower only and without the mousy odor I associate with the genus. Another notable plant, but not rare, was Leptopetis alpina, a miniature tree-fern and one of the most attractive ferns, to me, in New Guinea. I have saved material from which I hope to get spores to send to the Longwood Gardens.

A big day for mammals. Eighteen specimens on the table including Melomys fellowsii (white incisors), the first seen since Pengagl.

Thursday, September 24. First early morning here without low mist. Day more than half overcast, however. No rain for two days and one night.

Unprepared material kept me in camp until about eleven, when I went downhill from camp on a trail cut by Kim the cook. Went down perhaps 300 feet and into two ravines with small flowing streams. Thought the ravines would be rich in plants, but they were not. Picked up several species of ferns, a very robust Elatostema, etc. Was surprised to find big water beetles darting on the surface of small pools in the larger stream and managed to catch one by hand; sky was overcast and I did not have a net with me.

More visitors this afternoon, and in consequence today's plant collection is only half prepared. Visitors were Department of Agriculture men: John Barrett, entomologist, and J. Van Velders, plant virologist. Both appeared very competent, and were nice to meet. They could not stay the night. Barrett is entomologist at the coffee experiment station at Aiyura, Van Velders, assistant to Dr. Dorothy Shaw, is stationed at Kerivat on New Ireland and is visiting the mainland on observation of a virus which affects Crotolaria (planted extensively as a first year shade cover for coffee) and other economic legumes. Barrett a general entomologist; has a collection of about 10, 000 specimens at Aiyura. Looked through my bigger insects caught here and said two moths and a beetle were unknown to him.

Still bigger day for mammals. Local natives beginning to bring in material in quantity. Thirty-one specimens on the table, including 6 spp. new for the camp: Phalanger vestitus, Pseudocheirus corinnae, Uromys anax, Dactylopsila, Pogonomelomys, Lorentzomys. Four of these were jacked by Van last night. Dactylopsila here is different from any I have seen before: the black is blacker, the animal shorter of body and long-furred especially about the base of the tail. It has the strong musty smell of the others of the group.

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Our visitors brought mail. Included were six super-fast Extochrome films sent by Dick Archbold for trial.

Friday, September 25. Mist again this morning, and some wind with it (NE). Day completely overcast. Few drops of rain from a thunderstorm which passed to the north about 2 p.m.; steady rain from about 7:30 on into night.

Botanized up the slopes from camp for a second time, extending John's cut track to the top, 450 feet above camp and about 3/4 mile distant. Gradient easy. Crest of ridge is broad and nearly level. No detectable change in the forest, which is all mixed rain forest. Plants collected included two tree-ferns (Cyathea), and not much else of note. The forest of the upper parts of the ridge distinctly poorer in undergrowth and epiphytes than about camp level.

More visitors -- I hope the last for this week. Today Gavin Carter drove down from Okapa to pick up Aurichs and the medical student, and the three lunched together with us. Aurichs says that the Fore people, among whom alone kuru is known definitely, are beginning to leave their home area and journey to places as far as Goroka and Kainantu to work, and they may be expected to spread the kuru gene. A case of kuru, associated in some way with a Fore man, has been reported from Port Moresby.

Van working late these nights to keep up mammal preparations. New to the collection today were three Leptomys, the bright reddish brown jumping rat of New Guinea.

Saturday, September 26. Misty early morning with some gusty winds. The wind, no doubt, deflected SE trades, blow either up or down the valley. Day more than half overcast. Sharp rain breifly from a thunderstorm to N about 2 p.m.

Sent the boys out alone this morning while I worked on specimens on hand. Have been dropping far behind with a number of small jobs on plants and insects.

Mammals new for the camp continue to come in steadily by local natives. Today Macruromys and Antechinus were added, bringing the total to 27. The Antechinus is the rather rufous brown species first taken at Gono. Mammals and herps, also food, are being bought for tobacco, salt and beads. Local government policy is to pay in cash only in special cases, and we are following suit. Occasional mammals are bought for cash. It is a great advantage to be in a locality in which the natives bring in mammals in numbers. Most of the rarer things have been got that way. Traps as a rule have yielded few of the hard-to-come-by species. The Mt. Wilhelm camps, Kotuni, and now Purosa have been notable for the numbers of mammals brought to camp by the locals.

Fresh food is coming in in good variety and quantity: taro of excellent quality, a bunched yam, sweet potatoes, English potatoes, pumpkins, peanuts, very good tomatoes and shallots, and occasional cabbage and string beans. Tobram the Chimbu, taught how to shoot only recently by Van, brings in a blue pigeon or two most mornings when he returns from his trapline. The cook is a master on pigeon soup.

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Sunday, September 27. Clear last night; mist from before dawn to c. 8 a.m.; hot sunny day followed by showers beginning 4:45 with occasional mist driving up the valley.

Botanized down the patrol track towards Kamina village, distance a mile or more. Results not very good. At about a couple of hundred feet below camp level native garden lands and regrowth appear, interestingly enough, with the appearance of abundant Castanopsis in the forest. Could not see any change in soil. An oak (leaves brown floccose below) was scattered through the mixed rain forest above the Castanopsis.

Satanellus, the second for the trip, trapped last night in the gully below camp with a meat set.

Monday, September 28. Rain set in about 7 last night and continued until past midnight. Camp very wet this morning, and sandflies troublesome. For the first time in months I got out the 6-12 bottle.

A tremendous catch of insects at the lamp last night; best on the whole trip; but nothing very new and striking.

The day spent on a search for bat caves and an examination of the forest on the other side of Okapa. We also intended to call on Maa, who was to have begun collecting ectoparasites of mammals and land birds for the Bishop Museum at Moifa. Met Maa about 10 miles from camp, on his way to visit us in a native-chauffeured Land Rover of the kuru team at Okapa. Tall, wispy gentleman with graying bristly black hair and open countenance. Evidently well up on insects and widely experienced in field work. Invited him to join us on the bat hunt, and we proceeded to Okapa to call on government and drop letters for posting. Six miles beyond Okapa on the old (west) road we stopped at a place where a cave was reported to lie under the road. A most unlikely looking spot, but there was a small sharp edged exposure of limestone and the entrance to a cave. Entrance went straight down for about 15-20 feet to a small chamber below which - seen through a hole too small for a man to squeeze through - was an apparently large chamber with water. No smell of bats and shots fired into the lower chamber did nothing to reveal the presence of any. John and Van went into the cave on a rope. This cave was in mixed rain forest. A passer-by told of another cave or cave entrance in a ravine below the road. Had him guide us in a search. Plenty of outcropping limestone but no hole found.

Then proceeded less than a mile up the road, beyond the forest edge, where another cave was reported. John went in search of this with local guides but found nothing. Have an idea that caves exist there but the locals did not want us to see them.

Returned down the road a couple of miles and had lunch on a small stream, and close to the high bank of a big, turbid creek (freshet after the rains of last night). There we were in Castanopsis forest -- on the ridge above and down to the bank of the creek. Some admixture of other tress but saw no beeches.

Maa has been in Dutch New Guinea recently and will return there in February. Worked at Lake Sentani and Sarmi on the north coast, Fakfak and somewhere else on the south coast. Air travel is difficult he says. Dutch civil authorities are short of planes, but will not allow the well supplied missions to carry passengers. A Catholic mission now in the Balim in addition to the original

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protestant outfit. Gressitt of the Bishop Museum was in the Balim and Swart valleys a year or two ago, collecting insects.

Had from Maa my first real news of the Star Mts. Expedition of the Dutch, about which there was so much early publicity. Original plan that all scientific work should be done by Dutch has been adhered to. Brandt tried to join to collect insects for the Bishop but was refused permission. Entomologist friends of Maa at Leiden (not named) refused invitations to take part in the expedition on the ground that it was political rather than scientific. An arrangement for a French movie company to send personnel with the party, in consideration of a large sum of much needed cash which could not be raised in Holland, was cancelled at the last moment because the French were "too commercial minded." Brongesma, herpetologist, is in charge of the show -- at least the scientific part of it. A naval officer commands the military escort.

It was obvious that Maa wished to join our party and work with us. There would be conflict of interest in his work and Van's. We have a long standing commitment for Pullen of the CSIRO to spend some time with us next month to learn my botanical methods. Van, who did most of the talking with Maa about ectoparasites, gained the impression that he was sadly ill-equipped for working on his own and is dependent on local help. This help supposed to be given by the kuru people (Gajdusek group) but he has been in their area since the 25th without being able to begin his job. He returns to Kainantu tomorrow to pick up his gear, and camp equipment (for use in Moifa resthouse) from the kuru project.

After lunch we returned to Okapa post to inquire about another cave, near there, which Maa's driver spoke about. Leaving Maa at the post, and with an interpreter ("turnem talk") loaned by Carter, we drove down the Okapa Village road some two miles to Ilafo, at 5900 ft. uncorrected. Local guides obtained by John and Van who took them to an apparently large solution cave in limestone. Two Dobsonia shot in the cave (only two seen), and a big lot of two spp. of Miniopteris caught by various means, including one of my butterfly nets.

Returning to the post towards six in the evening, we met Carter hurrying out in a Land Rover to investigate a murder which had taken place about half way down the road to Purosa. We stopped on our way home to watch the proceedings. The murder, it developed, had taken place six weeks ago. The two culprits had owned up today and were taken to show the bodies. They had waylaid a woman on the road, One held her down while the other broke in her chest with a stone. They then killed the baby in arms the woman was carrying. The bodies were buried in a rock crevice in dense second growth forest near the road. All but a leg of the woman, the bones of which were showing above ground, stripped clean of soft tissues probably by ants. I left after the skull had been exhumed by the murderers, bare handed, under the urging of three native police. I did not witness a thumping the kiap gave the two killers after their horrible job was over. It would hurt them more permanently than a probable jail sentence of 5-7 years, reduced by years for good behavior. The people concerned in the murder had not been under government control more than 6-7 years. But so remarkable has been the job of pacification that none of the police party carried arms. It was unthinkable that anything should happen to them.

Quite a day for all, except the botany department. Got only about a dozen numbers, 5 or 6 new to the collection. A patch of $\frac{1}{4}$-$\frac{1}{2}$ mile of primary forest on the road a little this side of Okapa Post appears to be of beech mixed mainly with Castanopsis. The bulk of the forest seen beyond Okapa (see above)

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was a mixed rain forest almost identical with the type we are camped in.

Tuesday, September 29. Drizzling rain began sometime between 3-4 a.m. and continued until after eight. Thereafter almost completely overcast. No more rain. A chill breeze down valley this evening.

My routine was so much disrupted by yesterday's outing that I had to spend most of today in camp on collections. Spent an hour down the road, and sent the boys out from 3 to 5. Mammal dept. busy on the bats of Ilafo. A second native cat trapped with a meat-baited steel.

Wednesday, September 30. One of the few early mornings here without mist; clear and snappy, temperature perhaps 51-52 (Forgot to look at the thermometer). Day almost completely overcast after about 8 a.m.; brief spell of sunshine; no rain.

Had John drive me along the Okapa road about 2 miles to where the forest ends. From there walked back about a mile, first on top of the ridge which rises to about 100-150 ft. above the road thereabouts. Ridgetop forest a mixed rain forest at first; on the highest parts (c. 2050 m) Castanopsis forest. A big old native path, now out of use and growing over in places, ran along the top of the ridge. On the edge of the path, and perhaps planted there, were 2 Araucaria cunninghamii 9-12 inches in diameter and a Papuacedrus of somewhat smaller size. Have not seen these two conifers elsewhere in the area, although 2 Podocarpus spp. -- one scale-leaved and like pilgeri, the other aff. neriifolius but leaves very dark green -- are fairly common in the forest and grow to very large size.

We are constantly aware of rather unexpected lowland or lower altitude elements in this camp area. Today I took from my arm, and pickled, a fair sized brown leech. We had scrambled scrub hen (megapode) egg for breakfast, and I have often heard the call of this bird at camp level and above, though its nesting mounds have not been seen by me. One egg was ample for the three of us. Plants in this category have been mentioned previously. In mammals the most striking is perhaps Euromys caudimaculatus. In herps, a bout a dozen snakes of several spp. have been brought in by natives. Altitude records can seldom be established on native collections. The bottom of the Purosa valley, however, can not be more than 6-8 hundred feet below camp level.

Thursday, October 1. Return to early morning mist, clearing between 8 & 9. Fairly sunny day; no rain.

Did some more botanizing along the top of the ridge (on the road) this side of yesterday's area. A morning of hard axe work for my boys. Collected several fair sized trees including a red-flowered Hibiscus which attains very large size, and a yellow flowered member of the Myrtaceae which most likely is a Tristania. All along the high ridge crest, in both mixed rain and pretty pure Castanopsis forest, is a red-flowered gesneriad, climbing to a few feet on tree trunks and sometimes prostrate on the ground, which would be an acquisition to U.S. hothouses, but of which I can find no mature seeds.

Van now has, snared on tree trunks by Purosa natives, a russet Melomys new to the collection. Also the end of the tail of a bandicoot from a steel trap set by Tobram far down in the valley below camp.

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Friday, October 2. Foggy mist until about nine. Sunny day thereafter until about 4 p.m.; then clouded over from a thunderstorm to the NW; thick foggy mist in camp from between about 5 p.m. to dark. Stars shining tonight (9 p.m.) as they so often do until sometime between 3 a.m. and dawn.

Finished field work for this camp by a third excursion up the road towards Okapa -- but in the forest near camp. Best taking perhaps an Echinocarpus and a purple-flowered Syzygium from the canopy layer. A prominent forested knob with very tall Gulubia palms on top which rises about 200 ft. above camp to the N. seems to have been the site of a former village, or, more likely, a lookout station in the not-so-long-past fighting days.

Am working the second consecutive night shift on the botanical dryers in an effort to clear collections for a move tomorrow. Too tired to do summaries for the camp.

The rapid deterioration of my "Fiber-velope" botanical dryers is giving me trouble. Another instance of the recent cheapening of a well known product which I have used satisfactorily for years. The dryers are crumbling into dust. The edges are breaking up and hindering the circulation of the hot air (from Coleman lamps) with which I dry my plants. Result is, already, often two days in the dryer when one day should suffice. There has been so much shoddiness in supplies for this trip that countries other than the U.S. should be considered when outfitting for any expeditions there may be to follow this.

Have for this camp 289 botanical numbers including 28 bryophytes; 1417 sheets of herbarium specimens. Night flying insects, especially moths, turned up well. Diurnal insects were so scarce, due in part to the overcast weather, that after a time I gave up carrying a net into the field. For a bit over 6 months in the field I have more plant numbers than for the 8½ months total of the 1956 expedition; have not quite so many herbarium sheets -- a number of high altitude plants are in short series.

Van has a very good collection of mammals, about 80 bats from the Ilafo Cave bringing his numbers high. Total 307 specimens, 33 species. Included are 11 marsupials, 17 rodents and 5 bats. New to the 1959 collection are Leptomys and probably one of the four Melomys spp. Herps numbered 126 specimens; frogs 50 (c. 10 spp.), lizards 65 (c. 4 spp.), snakes 11 (4 spp.). Efforts to have native hunters, with dogs, bring in tree-climbing kangaroos and wallabies (we have bones of both) were without success.

Saturday, October 3. Work on specimens delayed our evacuation of camp until 9:45, when we left Purosa Camp en route Kainantu. Called in at Okapa, partly on official and social visits, and for John to get something from the hospital for an infection on his face and behind. Van and I had morning tea with Dr. Clive Auricht and his wife Ruth. Auricht, in New Guinea for a year on a research fellowship, returns to Adelaide in 10 weeks to do his internship. Proposes to join the P-NG medical service after that.

From Okapa we took the old (west road) to Kainantu. Wished to call on Maa, who was supposed to be camped in Moifa resthouse, 13 miles from Okapa on the old road. Also wished to inspect the country, and especially "magnificent" beech forest reported there. Mostly Castanopsis forest and mixed rain forest between Okapa and Moifa, but some big, scattered beeches occur with the Castanopsis,

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beginning 4 miles from Moifa; the forest fragmented by garden clearings, but surviving in considerable area; much of the garden clearing is new. Maa was not at Moifa -- we found him at Sonofi, 12 miles further on. The highest point on the road, 7475 ft. (uncorrected), was reached about a mile on the Sonofi side of Moifa, where extensive secondary grasslands came in on the left hand side. In about another 2 miles we entered old treeless grassland, with relic strips of Castanopsis forest in some gullies, other gullies grassy and carrying a few pandans and tree-ferns. Practically all the top soil eroded away on these old grasslands. Kangaroo grass (Themeda triandra) dominant. Low point in this extensive (valley) grassland 6500 ft. uncorrected. Was surprised to find a subalpine Styphelia growing in a shallow grassy gully at 6700 ft.

Maa, established in Sonofi resthouse, with caves and good forest handy, was in the field when we arrived there at 3:20. Got a local guide and entered a big cave in limestone, close to the road and a few hundred yards on the Kainantu side of the resthouse. No bats in the cave, only swiftlets. Found later that Maa had entered this cave yesterday, and another on the far bank of another creek from the resthouse, and got nothing. (Natives had brought him over 40 bats (2 Miniopteris spp.) but would not say where they got them. In conversation with the local Lutheran mission teacher, we learned of two more caves, close by, with bats in them, but Van, having seen Maa's bats, and been given a few specimens, decided that the other caves were not worth going into, and we drove on to Kainantu.

Maa, though short of alcohol (I gave him a little) and trying to trap mammals with bananas and sweet potatoes (Van gave him some special bait), is well equipped and supplied, his gear light weight for air travel. As assistant he has a boy on loan from Dr. Zigas.

Arrived in Kainantu about dusk and put up at the Kainantu Hotel. At our table for dinner was Jack Samuels, an Australian mining engineer who is testing a gold lode at Omaura for the King Island Scheelite Company. Big formation up to 40 ft. or more thick, with porphyrite hanging wall and granite footwall. Testing with a churn drill owned by government. Going through laterite up to 200 ft. thick. This fissured at depth; the drill water and much of the sample material with it, escapes. Evidently a big body of iron pyrites carrying c. 2 dwt. of gold. Work has been in progress since April. Samuels believes the gold comes from a depth, but he has been unable to strike the formation at depth. Government geologists believe it is a surface enrichment.

Sunday, October 4. Being spent in Kainantu on accounts and correspondence. Tomorrow we will do some replenishment of supplies and set out for the Karanka area, something over 20 miles ESE of Kainantu. This will be in the lower middle (4000-4500 ft.) altitudes. For the past two months we have been working at 6000-7000 ft. base levels. Kananka, if we find conditions suitable for work there, should be in a life zone which we have not yet touched on this expedition.

Kainantu-Arau

Monday, October 5. Left Purosa collections with the ADO for forwarding to Lae by the government charter plane tomorrow, bought a few items of stores at McBeth's general store and Tudor's trade store, and left Kainantu for the Karanka area at 9:45 a.m.

At Kainantu saw Zigas, who gave me copies of three of his papers on Kuru. I suggested that in the present activity in investigating ectoparasites of mammals and birds as possible vectors of the disease, the sandflies which infest the forests (of the Purosa area, at least) be examined.

Called in at Aiyura Agricultural Experiment Station to see Schindler (director) and Barrett (entomologist). Aiyura 6 miles from Kainantu. Mainly a coffee experiment station. Still some cinchona of special strains being grown although the demand for the bark in Australia ceased some years ago (the totaquin made from it apparently was crude stuff, hard on the patients). A new enterprise is the growing of pyrethrum as a second-string crop to coffee on the Highlands. An impressive lot of buildings, but the offices we saw were not very tidy, and the red dirt of these hills was ground into the floors.

Left the main road to Lae at Omaura, where there is a SDA mission. The branch road to Karanka runs right through the mission establishment; Mrs. Doble of the mission gave us directions. Considerable amount of fragmented original forest here is dominated by Castanopsis and oaks. An occasional Araucaria. Lateritic soil. The usual goats which the "Seven days" have at their missions.

Following a very hilly and in parts newly stoned road east from Omaura we crossed the Wanton River at 4700 ft. (uncorrected) and came to Arau resthouse 24 miles from Kainantu and 5000 ft. above sea level. Good resthouse, but boy's house poor, and the situation too open for long term comfort. Continued on road and in c. ½ mile came to a new coffee plantation with attractive, well constructed buildings and colorful gardens. Found we were at W.H. Larner's Karanka Plantation. Were invited in for coffee and sandwiches and offered a spare house to base in.

About a mile before we reached Arau, the towing yoke of our trailer broke and we left the trailer on the road in charge of one of the boys while we went on to find a place for camp. After coffee (home grown and very good), Wally Larner drove us on to Karanka airstrip, about 1½ miles N and at 150 ft. lower altitude. This locality much disturbed by coffee planting and natives. Therefore glad to accept the offer of the Larner house. John arrived with the broken trailer in two and its load in the Land Rover and we were settled in before the start of long, heavy rain from a thunderstorm.

Dined with the Laerner's. Mrs. (Muriel) L. a daughter of McGowan, an architect who used to be Director of Works in Rabaul. She was formerly a draughtswoman in the geological survey office of APC in Port Moresby; draws and paints. Wally was some sort of field man with APC and has travelled extensively in the Papuan interior on oil exploration.

Tuesday, October 6. Overcast for the most part; a smaller thunderstorm in the afternoon.

Botanized down to the Wanton River, which forms the western boundary of the plantation, and was running muddy after the rain. Boys carried me across and we botanized downstream a few hundred yards on the narrow river flats. Primary Castanopsis-oak forest with an admixture of rain forest canopy trees and many

rain forest elements in the underbrush and ground cover. One of the oaks has very small acorns, not above 1 cm. in diameter; another, at the homestead where there is a relic patch of forest, bears great acorns a full 5 cm. across the bottom. Forest very wet after yesterday's rain.

Wednesday, October 7. Day mostly overcast after thick mist and some drizzle about dawn. No rain. The season has been very cloudy here; rainfall not much above average but rain fell on many more days than average. We arrived at the end of the longest dry spell -- 4 days.

Worked in the relic patch of oak-Castanopsis forest immediately on the north side of the homestead. Much disturbance by cutting minor trees and by pigs, but in places a good undergrowth survives. Footing was difficult on the very steep, eroded, yellow clay slopes of a deep ravine. At least three spp. of oaks, not easy to distinguish from the Castanopsis, occur in this patch of a few acres of forest.

Mammals are coming in well. Eleven bats in three mist nets last night included 2 specimens of the very rare Paranyctimene, the others Syconycteris. Several steel traps carried away by a freshet in the Wanton last night, but recovered later.

Thursday, October 8. Early morning mist followed by almost completely overcast day; sharp shower between noon and 1 p.m., more just before dark.

Botanized east through the coffee plantings to the primary Castanopsis-oak forest beyond, and down a steep clayey slope to the O'awa River. Poor forest on the steep slope -- Castanopsis-oak with slight admixture of other large trees. One big Dacrydium? with pendent, larch-like branchlets in a gully head. Another tree was Engelhardtia, which I have found to be a regular associate of the oaks in true midmountain forest elsewhere in New Guinea. A climbing Vaccinium with narrow red flowers was common. Some tiny ferns collected in moss on trees, and big climbing Oleandra. The forests carry considerable moss patched on tree trunks, on undergrowth, and covering the flanged bases of some of the old oaks and Castanopsis, but very little on the ground except on rotting wood. The ground leafy. Oak and Castanopsis leaves decay slowly.

Met some people of Kamboira on the track. Big for mountain people, and bright, but many of them covered with sipoma. Women wear long "grass" skirts; the younger ones divided into front and rear pieces leaving the hips bare. The men spoke familiarly of the monotremes in the area -- long-nosed Zaglossus back in the mountains, short-nosed Tachyglossus generally distributed. The latter walk about at night and can only be found by dogs. Shaw-Mayer got a few fragments of the genus in this area about 1932 -- the only record for NE New Guinea.

Friday, October 9. Weather pattern continues. Misty rain in early morning; overcast to noon; some sunshine c. 12 to 2; steady rain, mostly light, from 4 o'clock into the night.

Went late into the field after working on materials on hand. Had John drive me down to the O'awa River, where Larner has boys clearing a new area of ground about a mile from the homestead. Clearing is on river flats not far above junction with the Wanton. Forest mostly of tall oaks and perhaps Castanopsis with a considerable admixture of a big red-barked Dillenia which Larner cuts for timber

Arau

His pitsaw crews were following the land clearers. Oaks appear to have the generic name Santuna in the Arau language. The Dillenia is Borera. A poor forest botanically. One of the most interesting plants was a small tree Glochidion with showy red fruits c. 5 cm in diameter.

Van already has 10 spp. of mammals for the camp. Two more Paranyctimene today and topotypic Macruromys. Talked today to Obura people, still half wild, who live beyond Mt. Elandora and work for Larner. They go home Saturdays for the weekend. Offering axes for tree-climbing kangaroos, wallabies and the two monotremes.

Saturday, October 10. Last night's rain continued into the misty dawn. Fair amount of sun today. Small rain from a thunderstorm towards nightfall. Wanton River running high and muddy. Flood marks on the banks about 20 ft. above low level. Kainantu has had 4 inches rain in the past day or two.

Forest very wet after the rain. Botanized south from the homestead in a gully patch, then down to the Wanton through poor Castanopsis stands on a steep, yellow clay slope. Most interesting plants were a very slender Cyathea with multiple stems not an inch thick and up to 15 ft. long, and tall, always striking Gleichenia candida. Hoya and Helicia also in this forest.

Dinner with the Larner's. Wally a good raconteur on experiences in World War II and Korea. He was one of the Australian battalion abandoned in Greece when the Germans overran the country. Eventually made his way out to Cyprus.

Sunday, October 11. The usual misty morning. Day mostly overcast. Driving mist and rain began about 5:30 and continued into the night.

Botanized north in forest borders of the plantation. Most interesting plant was the red-barked Dillenia, called Borera by the Arau people, which is common in the Castanopsis-oak forest and is practically the sole source of timber for Wally Larner's pitsaws. More common in the relics of forest on the irregular, narrow plateau on which most of the coffee planting has been done is a Michelia, very Magnolia-like in its leaves, but sterile.

Mist at night usually brings numerous insects to the lamps. Not so at Arau, where most nights it is not worth hanging a light trap on the veranda.

Monday, October 12. No mist this morning; day of broken clouds and good sunshine; thick driving mist up valley (from the north) 5:30 until after dark, when rain began. Still raining at 9 p.m.

Had John drive me to road bridge over the Wantan, c. 1¼ miles from camp, from where I followed a native trail into the forest on the east side of the river. Good tall Castanopsis-oak forest for ½ mile or so, where the track ended and there being no change I did not cut further. About half the distance on the crest of an easy ridge. Counted 13 new blinds of green branches and leaves baited with bite of sweet potato. A native who followed us in said the blinds were for shooting both birds and kapuls. The animals must be very tame to be fooled by such crude tactics. The bowman would not be more than 6 feet from his quarry.

Arau

Most noteworthy plants collected were five spp. of ground orchids. Two small palms were seen, both sterile; at least 4 spp. of Freycinetia. The forest more like rain forest than mid-mountain forest in the character and composition of its undergrowth.

I have 161 plant numbers for our first week here. Van has 19 mammal species. Today the white-footed Rattus of Gono turned up in traplines (first since Gono) and Echymipera was brought in by plantation natives.

Met this evening in the Larner's house Lorry Crowley, well known air pilot who owns Karanka Plantation nearby. Karanka was taken up about 1952, by a company, to grow tea. The tea grew very well. But the company was not very sound, or well supplied with funds, and the cost of a factory was beyond it.

Tuesday, October 13. Heavily overcast, misty morning followed by a showery day, some showers heavy. A thunderstorm began about 5:30. There has been thunder every afternoon since our arrival, from all points of the compass, but so far no lightning has been seen.

Spent a wet and not very rewarding morning in the forests between the plantation and the Wanton River. All Castanopsis-oak forest on steep to moderate slopes, and on low-lying flats along the river. Cut track up the river on my return towards camp. Best plant for the day was a beautiful Rhododendron with small yellow and orange flowers, brought in by a native during my absence and for which I have no field data. It is new to the collection. Another good plant was an undergrowth tree with yellow flowers like those of with hazel, and perhaps a member of the Hamamelidaceae, a rare family in New Guinea.

We are in a locality in which, apparently, prehistoric stone mortars (so called by the layman) are dug up in some quantity. The Larners have four various shapes in their garden which were unearthed when holes were being dug for coffee plants. Crowley has others, from his property, one from a depth of 8 feet where his airstrip was being levelled. The finds were on small, plateau-like areas, with good brown soil, which are now being planted to coffee. Larner offers my choice of one of his four for the Museum.

Wednesday, October 14. Clear, colorful sunrise with fog filling the valley bottoms and the heights standing out sharply. Sky soon overcast and heavy rain set in at 11:45 a.m. Weather took up aboute middle of afternoon. Cool breeze from c. NE tonight.

Forest very wet when I went into the field this morning, and it will be still wetter tomorrow. Had John drive me to an outsize Castanopsis on the NE edge of the planted plateau, where a track descends through the forest to the new clearing on the Osawa River. From there returned part way along the motor road, where John picked me up where I sheltered from the rain under a roadbank overhang. A fair collection of plants included several rain forest elements and the 3rd sp. of Freycinetia to be taken here. An interesting fern was pendent Oleandropsis of the middle spaces in the forest. The rain forest elements included a big Dysoxylum of the canopy layer and a canopy tree of the Sapindaceae.

The first night in several when jacking is possible; Van and Kim are out with guns.

Arau

Thursday, October 15. Mist during the night but morning clear except for a low fog in the river valley. Fine day with much sun. No rain. Temperature on our veranda at 6:15 this morning was 51 F. Hung the max. and min. thermometers this afternoon.

Botanized today in the gully immediately to the N of the homestead, where Wally is clearing a dam site, also preparing a few acres for experimental planting of coffee under forest canopy shade. No plants of special note. Castanopsis and a few oaks are the principal canopy species in this deep ravine.

This morning John drove to Aiyura and on to Kainantu. Main object was to repair the broken trailer towing bridle, or whatever it is called, with an electric welding plant at Aiyura Experiment Station. He returned about 6 p.m. with Dr. Maa and John Barrett as unexpected visitors for the night. Both eager to learn something about the mammals of the country from Van. Maa is winding up his work on the Highlands early and preparing to leave Kainantu for Lae early next week. From there he goes to Bougainville. Had fair success in Sonofi, not much at Moifa. He and Zigas failed to get 1-5 cc blood samples from native mammals for the kuru research project. Tried needles into the heart, also some kind of pump recently acquired for the purpose.

Learn from our visitors that Lae has had 6½ inches of rain during the past 2 days. Kainantu airstrip has been closed to DC3's for over a week, owing to wet conditions, and the town is out of bread and running short of fresh meat.

Friday, October 16. Clear night followed by a snappy morning -- high broken thin overcast, temperature down to 46 F., 8.5 C. Hot, sunny day. Strong SE breeze drying the open ground. No rain again.

Accompanied by Maa and Barrett, I botanized down a new road leading to a 30-acre clearing in the forks of the Wanton and O'awa rivers. Most of our plant and bug hunting was done in a few acres of low, in parts flooded ground in the apex of the river fork where big old oaks and Castanopsis were still the principal trees. Collected my first oak for the locality -- a small acorned Pasania, and saw another with longer acorns. A swampy flat edging the Wanton was covered with tall pit-pit.

Van still doing well and feels he can spend another week here with profit. Today he had a second Macruromys in steel traps, and Wally's clearing gang brought two very good specimens of Distichurus. Only two specimens of the latter had been taken on the other five Archbold Expeditions -- one on the Fly River in 1936, the other on the Peria in 1953.

Our guests got a lift back to Kainantu on a Department of Agriculture Land Rover visiting this area with Mick Hawley to drum up materials for a district exhibit for the coming Lae Show. Invited Maa to change his plans and spend next week with us at Arau; he is not sure whether arrangements already made will allow him to accept. Pullen, assistant to Hoogland (CSIRO botanist), will not be joining us, Hoogland advises by letter.

Maa has told more about the Dutch scientific expedition to the Star Mts. The plan was to fly (by the Dutch New Guinea subsidiary of KLM) personnel and supplies from Hollandia to a big strip somewhere at the foot of the mountains. Transport from there to a mountain base was to be by the expedition's two big helicopters. But the helicopters are now out of action and the expedition has been ordered to close and walk back to Hollandia. I find the walk-to-Hollandia part of

the story hard to credit. It would involve at least 150 air miles of foot travel across the grain of the country, largely through country which, so far as I know, is uninhabited. It seems, however, that the expedition has been a failure. It took the field with much fanfare in April or thereabouts. Maa confirms other reports I have had that the Dutch are woefully short of commercial air transport in their New Guinea territory.

Saturday, October 17. Max. 27, min. 9 C. Some high thin overcast and cirrhus clouds at sunrise (c. 6 o'clock); another fine, bracing day. No rain. The natives are taking advantage of the fine weather to burn off new gardens and the air in the afternoon was thick with smoke.

Went south more than a mile, through Arau village, to investigate a report of a white-flowered "rope" (vine) only to find an epiphytic Medinilla high on a big oak and a mass of red bloom. Could have collected the same common shrub within 10 minutes of camp. Made a start at collecting second growth and grassland plants. Was shorthanded. My head boy down with fever.

John, accompanied by my Soni and the #2 cookboy, lefter after lunch for Obura, on the slopes of Mt. Elandora, to stir the local natives into bringing in mammals and to climb the mountain tomorrow to collect plants. Had as carriers four of the gang of Oburas employed by Larner. They do the 4-hour walk home every weekend.

Van and I dined with the Larners and two guests (Ken and Noni Low) who flew over from Port Moresby yesterday for a vacation. Champagne in fine crystal. Low came to New Guinea in 1938 to work at Cuthbert's Misima Gold Mine. Captained boats for APC post-war and is still with them.

Low reports that the Port Moresby radio has had two briefs lately on the Star Mts. expedition. The party is walking back to the airstrip at the foot of the mountains, guided by aircraft flying over them. En route, they have got into a wrong valley. A naval officer is in charge of the non-scientific part of the show and should be able to steer a proper course after all the air mapping which reportedly has been done by the party.

Sunday, October 18. Max. 27, min. 10.5 C. Another rainless day, but about half overcast. Thick smoke haze from local and Markham Valley fires. Strong E wind.

Worked on plants in the morning and on accounts in afternoon. Send Edewawa down to the Wanton below the homestead to collect plants. Van in the afternoon drove down to Karanka strip and walked from there to caves in the limestone some half mile distant. Found at least two entrances. Exploration delayed at my request until John is available to take part. Laurie Crowley has had his plantation boys cut a track to the caves. He is interested in getting guano for his coffee.

John returned from Mt. Elandora about 6 p.m.

Monday, October 19. Max. 24.5, min. 13.5 C. The weather has changed. Some light rain fell during the night. Dull dawn and overcast morning. Sunshine from c. noon to 1.30. Afternoon overcast. Again much smoke; also strong E wind.

Arau

All day spent in the preparation of plants collected on Mt. Elandora yesterday by my boy Soni, John Collins, and sundry natives. Soni collected well; the other material very scrappy. The party camped the night of the 17th at Obura resthouse at 5200 ft. (uncorrected) roughly south of the mountain. They left the resthouse at 6:45 yesterday morning and reached the summit at 8:30. Altitude 8500 uncorrected, probably about 8300 ft. true altitude. The most recent map of the territory has 8500 ft. as the height; the green air chart 9,300 ft. The summit about 20 x 60 ft. covered mainly with "bracken" surrounded by stunted trees 6-15 ft. On the ascent, the edge of the forest was reached at 6200 ft. John saw no conifers or beech and could not distinguish any other trees. Good tall forest up to about 8300 ft. Above bambo and ferns. See report by John.

Obura is in a broad, hilly, grassy valley at what appears to be the main head of the Lamari tributary of the Purari. The people of the area are in a disturbed state over a dispute about land. Some fighting took place there recently. We had hopes of these people hunting for us -- especially Dendrolagus and Tachyglossus -- but this looks doubtful now. John spoke to the people, and to an armed constable who arrived from Kainantu to bring the disputants in for a court case.

The plant collections brought back give some sort of picture only of the top of Elandora. Xanthomyrtus would appear to be replaced by a small-leaved, white flowered genus which was abundant on Mt. Wilhelm, etc. Abundant with this were a big-leaved Eurya, a Sericolea, a Drimys with bright orange twigs, etc. No specimen of the bracken was collected, but there was material of an open ground Blechnum which looks like archboldi of the subalpine. The party reports not much moss, and the specimens show little of it. Mt. Elandora is on the edge of the Markham scarp. The rock is a weathered gray granite or rock of that group. A specimen of the rock collected by John.

Tuesday, October 20. Max. 28, min. 14 C. Clear dawn, the rays of the rising sun shining through the thatch of the gable end of our house at 6 o'clock. Hot sunny day; no rain, but thunder rattling to the south about 2 o'clock.

Crossed the Wanton about NW of and immediately below the plantation house, the river 340 ft. below the house. My plan was to go as high as I could on a prominent height which rises to 5500 ft. or more across the river. Lost some time in following a jacking trail made by Van's boys. The trail was supposed to ascend the mountain. Instead it climbed 90 ft. from the river to a broad terrace and followed this upstream. Eventually found a trail which led up an easy spur to a big new garden clearing at 4300-4350 ft. (corrected). A single-stem giant banana stood in this clearing, 25-30 ft. from the ground to top of the stem, the erect leaves at least 1-12 feet above that, the base of the stem exactly 2 m in measured circumference. A young shoot protruded about 6 inches above the ground. The parent tree was sterile. It looked like a giant species I saw and photographed (Nat. Geographic) at our 1200 m camp above the Idenburg in 1939.

Beyond the new garden clearing the trail became hard to follow in places, well defined elsewhere. Followed it to 4800 ft. and from there turned back at 11:50. Got off the trail and onto another about 200 feet down. Followed this until it turned away from the direction we wanted to go, then cut across country -- very rough going in and out of ravines -- to the proper trail. Back to camp at 2.20.

Arau

Best plant collected was a long-leaved Podocarpus with red receptacles. Saw on the river flat a second tree of the larch-like Dacrydium first noticed a day or two after our arrival here.

A runner arrived after dark with a letter from Maa and some preserved mammals from Barrett of Aiyura. Maa has been collecting there. Asks if he may join us at Kassam -- our next camp on the Highlands.

Wednesday, October 21. The good weather continues. Some early morning fog or mist. Thunderstorms around in the afternoon, but no rain here.

Collected in the vicinity of a limestone cave some 15-20 minutes walk north of Karanka strip, on the Wanton River. Van and John went into the cave. They first did this two days ago. Further explored today and found what appeared to be a big upper-level chamber not noticed before and requiring a ladder for entrance. The two visits have resulted in collection of Dobsonia, Emballonura and Miniopteris schreibersi. Rousettus is believed to be in the cave.

Had a fair bag of plants, some few of them apparently restricted to the limestone, e.g. a pendent polypodiaceous fern and some Elatostema relatives. The river flows in a limestone gorge at the cave and thereabouts. There is a streamflow gauge in the gorge. The Wanton is under consideration for a hydro plant to supply the Lae-Madang-Eastern Highlands area with electricity. Seems rather small for that. Crowley says the gauge has registered a flood level of 34 feet -- one foot under its capacity. The river banks are too frequently floodswept to carry much in the way of plants. Recent floods have risen about 20 feet.

Thursday, October 22. Max. 28.5, min. 11.5 C. Still no rain, and no indication of it today. Misty dawn. Very thick smoke haze and a slight feeling of dryness in the air this afternoon.

Botanized on the secondary grasslands, and in the relic primary forest of a ravine near Arau #2 village. The principal grass of the formerly forested lands is a hairy Ischaemum about 3 ft. high and forming a tangled stand. Rather numerous tall thickets of Saccharum sp. and Pennisetum macrostachyum are conspicuous, and a clump of Themeda gigantea appears. Imperata arundinacea takes over in places and forms a dense cover 2 ft. or more high. With this occur Apluda mutica and a few other grasses and herbs.

Van and John revisited the cave this morning but decided that ladder work was too dangerous. Have heard of another cave in the neighborhood and have asked John to make inquiries of the local people. I find their pidgin hard to understand. But it is difficult to get John to attend to expedition business when he can find anything else to occupy his time. Present focus of interest is a small dam which Wally is building near the homestead. The #2 cook resigned this afternoon through trouble over ration biscuits -- a situation which could not have occured if John paid proper attention to his duties. I advised the boy to think matters over and he is at work this evening.

Van has 90 traps set in the limestone gorge below Karanka; in two nights they have yielded nothing of special interest, such as water rats of the several genera. Great commotion in the Larner house this evening as Muriel chased, and knocked down finally, the first Hipposideros for the camp. The kill was made with a broom.

Arau

Friday, October 23. Max. 28.0, min 10.5 C. Clear at sunrise except for white clouds cutting off the mountain tops. Half cloudy day with strong wind. No rain. The ground is drying out and there is some dust on the roads -- and cracking of the yellow clay of the steeper ridges.

Had John drive me about 2 miles west along the Kainantu road to what I think is Ebaina Creek, a tributary of the Wanton. Botanized up the creek with good results. Rocky stream strewn with loose boulders; small silty patches on the flood banks. Travel easy from stone to stone, but footing chancy on the waterworn surfaces. Mixture of granitic and limestone in the transported boulders. Still in Castanopsis-oak forest; a large Echinocarpus occasional along the stream. Interesting plants were a giant (2 m) Elatostema gregarious on a silty bank, a big Calyptrocalyx, the first menispermaceous vine seen on the Highlands, and one of the brilliant orange-red Mucunas known as D'Albertis Creeper in Papua. This Mucuna seems practically restricted to the creekbanks and falts and is not as floriferous as most of the red species.

Things are slowing down in the mammal department. Van's boys out this afternoon with axes in search of arboreal Pogonomys. We will stay on until Monday a.m. in the hope that local weekend hunters will bring in something good, then return to Kainantu. Special effort being made to get Tachyglossus.

Saturday, October 24. Max. 27.5, min. 16 C. Mist and drizzling rain at 6 a.m. Most of morning continued mist and rain. Steady rain from 7 p.m. until about midnight. Weather from c. North.

My day spent on plants in hand, and getting some letters written. Boys out in afternoon after oaks and collected a common Pasania with cupules up to c. 55 mm in diameter. This the 3rd or 4th sp. of oak collected here, and there is another with flat acorns and shallow cupule 55 mm in diameter. Having serious trouble with another item of shoddy equipment. One of the four 1½ inch web straps used in my plant drying outfits has broken. Bought at a high price in New York, the straps have merely an outer covering of good quality fiber over a core of some rubbishly fiber. All the straps have perished with the the heat of the drying lamps and will break up at any moment. This has never happened to me before on the six expeditions on which I have used this type of equipment. Will radio Australia for more on Monday, when we return to Kainantu.

Van, having very little from traps in the limestone area, moved to Ebaina Ck. this afternoon. This locality in the Sasaura village area.

Dinner in the evening with the Larners -- cormorant cooked elaborately in wine, and very good too.

Sunday, October 25. Max. 25.5, min. 17 C. About 50/50 cloud and sunshine. No rain to mid-afternoon, when these notes are being written.

Morning spent on collections, photographing various spp. of acorns, choosing one of Wally Larner's stone mortars for the Museum, etc. Afternoon on correspondence and packing up. Arau, occupied for nearly three weeks, has been the third longest camp on the trip and comes third in number of botanical collections -- 381 numbers including 37 bryophytes, 1895 herbarium sheets. The area has been weak in canopy trees and for that matter all types of trees, the dominant oaks and Castanopsis supplying the great bulk of the tree stocking. It has been rich in herbaceous undergrowth, induding ferns, rather poor in epiphytes.

Arau

Lowland influences are most apparent in the ravines and on river flats, where the undergrowth is largely of rain forest elements.

Nothing of interest in Van's new traplines; last night's rain perhaps the reason. He has to date 30 spp. of mammals from the camp.

Monday, October 26. Chartered Crowley Airways (Laurie Crowley) Cessna 170 for a survey flight to the Wantoat Valley in the Finisterres some 40 miles NE of Arau. Took off from Karanka airstrip at 7:40. Some cloud about but weather good. The Markham valley green after what must have been an unusually wet dry season there; big areas of foothill ridges on the eastern side had been burned within the last day or two (we got the smoke at Arau). Slipped through a gap in the very rugged fronting range of the Finisterres, circled the Wantoat Valley (drained by the Leron River) and landed. P/O Paul Conroy was away on patrol in mountains to the E. or S.E. Two police at the airstrip were smartly dressed and behaved smartly. Station looked well looked after. But the only relics of the original forest are in gorges. Some grassland, but most of the valley is second growth forest. Primary forest survives fairly high on the slopes. We could not spend more than about two weeks there and the expense of air charters and the organization of carriers transport to reach the good forests would not be warranted. All slopes are very steep. The larger streams have cut down vertically in what appears to be unconsolidated materials (volcanic?). The beds of all rivers issuing on the Markham side of the Finisterres are broad washes carrying braided streams. The range is rapidly wearing away and filling the Markham Valley.

Crowley landed me at Kainantu at the end of the flight (c. 1 hour, 16 pounds), where I waited until nearly 1 o'clock for the arrival of the Landrover and the rest of our party from Arau. Lunched at the hotel, took on stores for two weeks, and left the town about 2:45 p.m. A bridge is out on the short road to Kassam, so we were obliged to travel the extra 9 miles via Aiyura and Arona. Called in at the experiment station at Aiyura and saw John Barrett. He had had a fine catch of moths with the ultra-violet light two nights ago. Showed me 23 numbers of plants of the alpine and subalpine collected on his visit to Mt. Wilhelm last month. All common species, but well selected and dried.

Arrived at Kassam about 5 p.m., where we have the use of a European-type house at the prison camp. House not very well designed, but it is luxury for us and there is ample room for working and living space. Kassam Camp houses long-term native prisoners from the two Territories who work on the maintenance of the motor road over the range and down the escarpment to Water Rice on the Markham, a distance of about 6 miles. Now 26 prisoners in charge of a native corporal of police from Misima. Place well cared for and the prisoners do not appear to be leading a particularly hard life.

Talked with Zigas and Maa in Kainantu. Maa will spend a week with us at Kassam, beginning on Wednesday. Heard in town that Zigas, tomorrow at Henganofi, will be honored with a "breaking of the sugar" sing-sing. This is a very rare honor in recognition of his work on kuru.

Kassam

Tuesday, October 27. A little light rain during the night. Morning mostly cloudy. Afternoon less so. Gusts of wind down the little valley in which we are located, and strong drive of clouds from the SE overhead.

Botanized up the creek from where it crosses the road toward the pass. Good primary forest dominated by Castanopsis and oaks with an admixture of other, bigger trees of which one is a Sloanea. A red Mucuna making a great display from about the middle spaces down to near the ground. Some species the same as at Arau, which is no more than 30 miles distant in a straight line, others new to the collection. One of the new plants is a big Pasania with medium-sized, pointed acorns and gray leafage.

Particulars of Van's Arau collections: 30 species, 158 specimens of mammals, plus nine sent over from Aiyura by John Barrett. 13 spp. are new to the Kratke Mts. (Shaw Mayer got 36 in the general area back in the 30's). Four of Van's mammals are topotypes. Two are new for this expedition: Myotis and Distoechurus. A good series was taken of the (new?) white-footed Rattus first collected at Gono. Total mammals to date are 1963. Herps. Snakes 13 (possibly 8 spp.), lizards 11 (possibly 4 spp. including a giant forest gecko); frogs 117 (possibly 12-15 spp.). House geckos do not occur anywhere we have been on the Highlands. An effort was made to introduce them at Goroka, but they lived for a short time behind the kerosene-burning refrigerator -- warmest place in the house -- then died.

Wednesday, October 28. Foggy morning; the clouds pouring over the range-top from the Markham. Showers and fog (rather than mist) in the Kassam Gap until about 11 o'clock. Very extensive view of the Markham Valley, fresh and green, after that; the Finisterres under cloud about ca.5000 ft.

Had John drive me up to the gap (c. 2 miles) and down to an abandoned road camp 150 ft. below the top. Stayed in the vicinity all morning. The forest there is of Castanopsis and oak for the most part, but carrying a considerable admixture of rain forest elements, e.g. Sloanea, an Endiandra?, in the canopy layer. The lower layers rain forest in character and probably ascending from the Markham. Collected several smaller trees which I can not place to genus. A brilliant red Medinilla which was a common high epiphyte at Arau was taken not 30 feet from the ground this morning. Collection also includes a beautiful lavender Passiflora with black corona.

Van had little in traps (only a brown Melomys) but the local natives made a good start by bringing in Peroryctes raffrayanus and a Dactylopsila. Pseudocheirus forbesi shot by John last night. Big Emballonura shot at the camp at dark.

Maa was brought to camp from Kainantu by Zigas about noon. Zigas on a blood typing and malaria detection project; got 70-odd samples from the local people. Interesting man, but his talk is rapid and English often indistinct. Both he and Maa half sick with malaria. Zigas Estonian by birth. Was taken in to the German army while a medical student. Speaks Russian and was an interpreter in the language for the Germans. Born in 1920. Is dissatisfied with the P-NG medical service; too much penny pinching and difficulty in getting supplies; but seems to have no intention of leaving; too much wrapped up in research. Research funds come from the U.S. in generous measure.

Kassam

Thursday, October 29. Clear day throughout. Strong wind down the valley in afternoon; this no doubt deflected SE trades coming from the NE here.

Worked again in the Kassam Gap. A good bit of time spent in the collection of a giant banana Ensete calosperma fide Womersley (Musa 32310) which grows commonly in the road clearing in the upper part of the gap, on the Highlands side. Stems up to 9-10 m tall by nearly 2 m circumference at the base. Seems to be the species seen at Arau, but here it is in fruit; the fruits 3-angled and the seeds very big. This may be a big sp. which Womersley and Brandeis are reported to have collected recently at Aiyura; Womers;ey pronounced it new, according to Barrett; but I seem to remember that a giant banana was named by the Germans long ago, and this could be it.

Not much doing in the mammal line. Only a brown Melomys in traps. But Nyctimene (smaller than geminus?) was netted last night, and Emballonura and Pipistrellus shot.

Maa works hard at his insects, using a beating net for everything. Says he has not collected more than ten butterflies in two years. This evening he has a few traps out for mammals, and a mist net set. He carries no gun, though collecting ectoparasites of birds. Maa sorts the larger stuff into cellucotton sheets in cigar boxes; a mass of very small things is sent to Formosa to be sorted with the cheap labor available there. Says that under the big Pacific insect scheme, the Bishop Museum is about a year behind in mounting specimens.

Friday, October 30. Sunny, hot day with the usual downwind in the afternoon and upwind toward evening. Still no rain.

Maa, John and I drove down to Lowe's Ford on the road to Water Rice in the Markham Valley; distance 7 miles, altitude at the ford 2000 ft. (uncorrected). Midmountain type of forest persists to about 2700 ft., where an oak was plentiful but no Castanopsis was recognized. The lower one goes the more admixture there is of rain forest elements. At the ferry a fair sized bouldery creek with grassy bottom flows through gallery forest and open gallery growths in which a prominent tree is Aleurites moluccanus, now in flower. Quite a lot of flowering at the lower levels, and from top to bottom in the mid-mountain the oaks are in flower or bud. This flowering of the oaks is said on Goodenough Island to indicate the beginning of the rains and the time for planting gardens.

Araucaria klinkii appears on the slopes at about 4200 ft. (uncorrected) and persists down to about 2400-2500 ft. Made my first collection of this splendid conifer, together with photos of the various parts. Cones are ripening and seeds falling, but the percentage of fertile scales is small.

The sun was hot in the valley and I had a little sunburn. The road emerges from forest cover at round about 3000 ft. although forest runs down the ravines to about 2000 ft. Coming on somewhat above the Araucaria, and in evidence down to about 3500 ft., is a big Maniltoa unfortunately in sterile condition.

Saturday, October 31. A good bit of cloud but still no rain; wind somewhat modified. We have had no mist or fog in the camp locality for some days.

Kassam

Climbed the fronting ridge beyond the prison and dropped down to a fair sized stream on the other side, which I followed down to the road a little below our camp. All Castanopsis-oak forest; some of the trees very tall and of big diameter; a small fruited Sloanea perhaps the biggest tree in the forest; an Echinocarpus with small fruits frequent as a smaller tree in the ravine. Collected several smaller trees new to me. Not much moss in this forest. Some matted on the bases of some of the big trees, some on rotting wood on the ground, some on rocks on the stream.

Had a proper breakdown this morning with the shoddy big web straps of my plant drying units. One after another, three of the four broke when I was preparing bundles for drying. Found then that we have only about a pint of formalin in camp for all purposes including emergency plant preservation. Van had sent our stock back to Lae. I ordered new straps from Australia by radiogram on Monday. Despatched John to Kainantu (50 miles round trip) to see if the straps had arrived and to send a radiogram to John Womersley to send up formalin from Lae. The straps had not arrived. By sewing together good parts of the one ones I have one pair with which I can dry plants to 50% of capacity.

Sunday, November 1. Mostly sunny morning. Black clouds gathered to the N about noon and steady light rain began about four. Rain to after 8 p.m.

Have such a backlog of undried plants, and such limited drying capacity until my new straps arrive, that I did no collecting today. Got some letters written. Boys spent most of the day making nets around 8 big Araucaria klinkii cones collected a couple of days ago. Unless contained in some way, the cones fall to pieces in drying.

Van has 17 mammal species for the six days we have spent at Kassam. Today's surprise was Philetor, caught in a mist net stretched across a stream in the forest. Insectivorous bats are rarely netted. This is a lowland bat, now collected for the first time on the Highlands.

This evening we have a visitor in distress: Cliff , carpenter who does contract building, who went down to Gusep this morning in a wartime truck to bring back a load of 50-gal. fuel drums for the government at Kainantu. The wiring of the truck burnt out on the steep part of the range at about 3000 ft., the brakes were slow to work, and he finished up with the truck across the road and blocking it to all traffic. Walked on in the rain and is with us for the night. Intelligent, active man in early 40's who likes to fish and hunt and obviously is a reader. The fuel drums are wartime empties, used by the government for road culverts, etc. Great numbers still remain at Gusep on the Ramu-Markham Divide and an important air base during the war.

Monday, November 2. Day almost entirely overcast after about 9 a.m.; no rain.

Botanized over grasslands and through a relic gully strip of Castanopsis-oak forest to a hamlet and new gardens about 500 ft. above camp in about a SE direction. Thence across higher grasslands and through a wider gully forest to a 9-house village called Kaiokopa, about 700-800 ft. higher than camp and 1-1½ miles in the direction of Arona (c. South). A number of grassland herbs and the dominant Themeda triandra collected. One of the herbs a Wahlenbergis like the Australian W. gracilis. Last mail brought a request from van Steenis for seeds of the

Kassam

New Guinea spp. and observations on Pratia, also in the Campanulaceae. A few seeds gathered this morning.

There was a recently burnt house in Kaiokopa, perhaps a happening during native troubles in this general area some few weeks ago. The trouble was about land. Excitement ran high. Houses were fired, and some people hurt. One evening the "rebels" gathered at Arona Livestock Experiment Station, in the vicinity of a house in which a white woman was alone at the time. The story has it that Bob Wagonette, a rough old Australian bushman who works on the station, and another man, mounted horses. Bob, a Light Horseman in World War I, gave the order "prepare to charge". Then "Charge", and withsticks in their hands they charged. The natives, terrified of horses, took to the hills and did not come back. There was a radio scare in the country at the time. Police reinforcements were rushed in. But Bob' cavalry charge was not made public.

Our hospitality a little strained by the arrival of two Salvation Army lassies -- Capt. Dorothy Stephens and Lieut. Dorothy Elphick -- to spend the night. They drove down from Kainantu on a monthly visit on infant welfare work. Very practical sorts. The captain is only visiting from Port Moresby, where the Army has H. Q. for eastern New Guinea. The Lieut. a triple-certificated nurse from New Zealand. On a child immunization campaign against diphteria, whooping cough and . The Army is supplied by government with all drugs etc. used in its medical mission work. First established in P-NG within the last couple of years at Port Moresby, where 7 officers are stationed and they run a hostel for transient natives. Two officers at Kainantu on medical missionary work for about 15 months. These the only stations so far.

Tuesday, November 3. Day largely overcast, with return of the down valley (deflected SE) wind; no rain. The rain of two nights ago did not reach as far west as Goroka.

Botanized c. NNE on the ridge of the Markham scarp to c. 300 ft. above camp. Nothing of particular note; mostly woody undergrowth spp. and low-epiphytic ferns. Several palm spp. noted, but none in collectable condition: the very tall Gulubia first met with (and collected) at Gono, the Calyptrocalyx collected at Arau, a largish Orania (just coming into flower), a ?Ptychandra (sp. collected at Kimi Ck.?), a slender pinnate sp. of the undergrowth, and a small Calamus. Yesterday I gathered fruiting material of a stemless slump sp. which first appeared at Kimi.

Today's visitors were Acting District Commissioner Mick Foley and Robertson, a Mines Dept. man whose function it is to advise native miners on gold production. Their stay was short -- for afternoon tea. Foley on a routine inspection of his district. Robertson and his Land Rover commandeered in the chronic shortage of Admin. vehicles in general.

Maa Tsing-Chao's visit with us being profitable to both sides, and pleasurable at least to us, I invited him this afternoon to continue his stay until we move from this camp -- about Monday next.

Wednesday, November 4. Weather as yesterday.

Ran a night shift on my dyring apparatus and as a result of this and unprepared leftover plants was late getting into the field. Had John drive me to

the crest of the range, then went c. east along a good path through very tall forest in which rain forest elements formed a conspicuous admixture with the oaks and Castanopsis. Altitude about 5000 ft. No evidence of wind blasting or frequent mist on the crest of the scarp. Collected a fairly common big sapotaceous tree of the canopy layer, with green flowers smelling like rotten bananas; recognized Himantandra, a common big Calophyllum (collected sterile), and several Lauraceae. Biggest tree felled was of the Lauraceae.

Thursday, November 5. The rainless, about half overcast weather continues.

Botanized downstream in the forest on the far side of the creek; this side of the stream is entirely grass. A number of interesting plants, indicating mixing of lowland and highland elements. Two spp. of Pasania, both with small acorns and underside of leaves floccose. A very fragrant yellow-flowered Tecoma was somehow unexpected, although I collected another species a good 2000 ft. higher at Kotuni. A real prize, only recognized today though collected first some 2-3 days ago, was Annesijoa of the Euphorbiaceae, known only, I think from the original German collection in this Territory, a collection of mine in Dutch New Guinea, and now Kassam. This peculiar endemic genus has its known near relatives in Jatropa, etc. in the Americas.

Friday, November 6. Change in weather. Overcast early morning. Strong wind up valley. About 50/50 sun and shade through day. Heavy showers from 6 p.m. into night. The upvalley wind is from c. SW.

Botanized up a branch of our camp stream in a NNW direction. Still getting interesting things mainly of sporadic occurrence in the primary forest. Two or three spp. of Lauraceae added to the already considerable number collected in this locality. A good name for the primary forest would be Castanopsis-oak-Lauraceae forest, if the pundits would allow such a scrambling of terms. Among the oaks, Pasania is by far more abundant than Lithocarpus. Have still to find the Castanopsis in fertile condition, but consider it C. acumatissima.

A good day for mammals. Lorentzomys in traps, Syconycteris in a net, and Hyomys and Pseudocheirus corinnae brought in by natives, all new to the collection for Kassam. We last got Hyomys at Pengagl and Lorentzomys at Purosa. Mammal spp. for the camp now 24. Taking this and Arau together as not-far-separated Kratke Mts. localities, we now have 39 spp., Shaw-Mayer had 36 spp. Both collections contain species not in the other. With 52-53 known species, the Kratke Mts. must be by far the richest locality in New Guinea for mammals.

Yesterday being the day of the week when the marys do maintenance work on the roads, and the men loaf in the shade nearby, John drove to near Arona to talk Tachyglossus to the natives. Asked them to bring in any fragments they may have of this and Zaglossus. Early this am. assorted natives brought in the nose part of a Zaglossus skull fashioned into a chisel, and spines and bones which could belong to either of the monotremes.

Saturday, November 7. Overcast most of the day from early morning. Heavy intermittent rain 7 p.m. to 9 p.m. For two or three days now we have been conscious of increasing temperatures. No doubt the beginning of the built up for the rains. Noted temperatures of 84 and 85 F at my worktable in the house yesterday and today. Lowest temperature noted has been 60 F.

Kassam

Did another night shift last night, and am repeating it tonight to get plants dry for shipment to Lae before we leave the Highlands. Today's botanizing was along the creek in an upstream direction, collecting amphibious plants and odds and ends from the banks. Several sedges, Cardamine, 2 Polygonum spp., the umbellifer used throughout the Highlands for greens, etc.

On a request from John Womersley, who wishes to grow it in the Botanic Gardens at Lae, I had John and one of my boys collect 5 seedlings and suckers of the giant banana of Kassam Gap -- Ensete calosperma, according to Womersley.

Three more mammals new for the camp today: Antechinus sp. and Uromys caudimaculatus trapped, Phalanger gymnotis caught on the ground by the dog of natives hunting over Arona way. Our only other gymnotis for the trip was taken at Kaindi.

Sunday, November 8. About 50/50 cloud and sun. Lot of broken fog in the valley at dawn and about an hour later. We learn that last night's rain apparently was confined to the timbered range top, the road to Kainantu being dusty from this side of Arona.

A busy last day at this camp. Self working on collections all day. Van had nothing in traps or nets last night -- due to the rain perhaps. He has been packing dry skins and skulls most of the day. John visited a village on the forest edge above Arona this morning in search of any available bits and pieces of Tachyglossus which may have been kept as trophies, or been thrown into the kitchen middens. No results, but he brought back a few mandibles of other mammals and some bone needles for which birds probably supplied the material. After lunch John walked up to Orona (not Arona) village in the hills to the south, where a Tachyglossus was reported eaten a couple of days before our arrival at Kassam. He brought back the nose part of a skull and a few black-tipped quills. Tonight he is out with local natives and their dogs on a hunt for the "porcupine."

Had my boys go over some of the grasslands this morning, mainly to fill in short series. Pit-pit (Saccharum), which is so important in the Goroka Valley, is minor here. Land cultivated within fairly recent years carries mainly true "kunai" (Imperata cylindrica). Old-established grasslands are dominated by the Australian Kangaroo-grass, Themeda triandra. So far as I can see, on my limited observation here (I have concentrated on the primary forests), soils are not important in determining grass cover, except in moist hollows. Soils vary from a deep black of heavy texture (1-at least 5-6 feet over yellow clay) as at our camp, to a reddish laterite. The grasslands of the Highlands are of economic importance to Europeans because, wherever they can, the natives have their gardens either in new clearings in the primary forest of the "pioneer line" on in forest second growths, and government policy practically restricts European settlement to grasslands not occupied by the natives. These grasslands merit a special botanical and ecological study.

Mostly from the primary forests which cover the upper parts of the Kratke Mts., I have 211 botanical numbers from this camp, including 37 bryophytes; 1147 herbarium sheets. The forests, being dominated by Castanopsis and oaks, are poor in species of canopy trees and the under layers are poor floristically. There is in most places a definite subcanopy layer of trees below the canopy and above the substage.

Kassam-Water Rice

There is no exposure to the direct force of the SE winds of the monsoon climate, and the midmountain forest of Fagaceae have in general the appearance of a mixed rain forest. There is very little moss anywhere on the leaf-strewn ground, and the ground cover or rather, low undergrowth, is chiefly woody.

The camp has been poor for insects. Every night a breeze moves down or up the valley, making light trapping unrewarding. Netting has been practically confined to Odonata, of which I have probably not more than 50 all told. There is some variety in butterflies in the sheltered entrenchment of the creek, but I have not had time to collect many myself and my boy's time is taken up with plants. With our Land Rover transport, we can not carry an extra boy for bugs. The local natives in most of our localities have brought in herps in numbers and good variety, they being easy to catch.

Counting the Tachyglossus remains, and a half-grown Satanellus brought in by natives today, Van now has 29 mammal spp. for the camp.

I plan to go in to Kainantu in the morning to ship collections and spare gear, and we should be at Water Rice, in the Markham Valley, tomorrow night. In preparation for this move to the malaria ridden lowlands, we have been dosing the boys with prophylactic camoquin for the past two weeks.

Monday, November 9. John and I to Kainantu after breakfast, taking specimens and spare gear for air transport to Lae, also Maa and his belongings. Maa plans to fly to Lae tomorrow, thence to Rabaul, New Ireland and Bougainville before returning to Dutch New Guinea.

We went to Kainantu by the short-cut road, which crosses the Ramu by a swing bridge at the head of the gorge by which the river descends to the lowlands. Good, strong bridge, but badly designed, and the sumpcase of the Landrover got stuck; got clear by lifting the tail. Returned by the long road, via Aiyura.

Left Kassam at 3 p.m., fully loaded, and reached Water Rice, at 1500 ft. (corrected aneroid) in the Markham Valley about five; distance about 12 miles. Valley very hazy, but our arrival at the bottom was after the heat of the day and temperature was not unpleasant. Soft night air. Breezes from thunderstorms, first down the valley, then up, kept the mosquitoes subdued -- those seen all anopheles. We are camped in the government resthouse.

Stopped in the valley, some 200 ft. up the gentle slopes above the resthouse, to photograph and collect an extraordinary wild banana growing in the tall-grass savanna. The spathes are persistent, green, imbricated and completely covering the fruits. The native names is sus.

Water Rice, we are told by the caretaker and "turnem talk" in charge of the resthouse, should properly be called Wara. The stream is Rering -- the r's rolled. Late District Officer, who built this end of the range road, is responsible for the name Water Rice. In pidgin, water prefixed names, e.g. Water Ramu. Above D.O. was Haviland.

Tuesday, November 10. Hot, sunny morning with very little air movement, but very uncomfortably hot. Squally rain 4-4.30 p.m. from a thunderstorm. This from about N.

Kassam-Water Rice

Had John drive me up the road to make more photos of the strange banana, which comes in about a mile from camp and extends about another mile to where the foothills begin to rise. Found in the savanna there a giant Amorphophallus in flower and beginning to release its foetid odor; photographed flower and leaf. Continued to c. 2000 ft. in the foothills to examine a patch of poor forest on a steep slope above a stream; found little to collect. Gathered material of a very common yam (Doiscorea) of the savannas. Found one of the characteristic savanna trees, Sarcocephalus (Neonauclea) cordatus, in flower and collected it. More abundant and of very different character with its sparse, open foliage is Albizzia procera as a savanna tree. The Sarcocephalus has big dark green leaves and makes a good shade. All the savanna I was in had been burnt about July and already the grasses -- Imperata and "cane grass" -- were waist to over head high. Kept as good a lookout as possible for death adders, said to be common in the area and to kill numbers of cattle at Gusap, some five miles farther up the valley.

For sixty traps out last night, c. 1-1½ miles up the road in bits of forest and along a stream in the savanna, Van had this a.m. a Hydromys, a Melomys new to the collection (apparently), and a Rattus-like leucopus. Tonight he has out another 90 traps. A pep talk from John got about 30 small boys and girls out after herps, but their hunt was stopped early by the rain.

Sid Staines of Gusap and his one white stockman, Allan , called in late in the day. Staines manager of the Gusap cattle enterprise and a partner in it with Monty Atkinson of Cashmere and other cattle stations in North Queensland. Gusap established about 3½ years ago by Staines. Stocking with cattle from Australia was made difficult by elaborate quarantine regulations in New Guinea. Between 300 and 400 brought in. Herd now 1100. Basic Zebu-Shorthorn cross; Santa Gertrudas being introduced through a bull and stud of grade cows. Cattle do well, despite a virtual absence of shade on the grass country. Breezes modify the climate and cattle can be worked at all seasons except in the intermediate period between the SE and NW, which we are in now. Rainfall at Gusap by Staines' records is about 85 inches, well distributed through the year. Principal grasses are kangaroo grass (Themeda triandra) on the light soils, blady grass (Imperata cylindrica) on the heavy, black soils. Experimental introduction of grasses has not been successful so far except for a giant Guinea grass, which runs out the poor blady grass in open competition. Staines says that in coastal North Queensland Guinea grass and leguminous Centrsema for tropical pasture under high rainfall and will carry a beast to 1½ acres. Worst cattle pest at Gusap is screwworm. Has a different leg-hair count from the screwworm fly of Florida and is thought to be a native species. Can be controlled under present conditions of Gusap by dieldrin spray -- about every five weeks in the dry season, 3 weeks in the wet. No cattle ticks, redwater fever or pleuro-pneumonia. Local natives found of little use at Gusap -- scared of horses and cattle. Only a few breeder stock sold so far. Driving of fat stock to Lae not practical -- distance 115 miles, much long grass, inferior native help. Staines thinks killing at Gusap of good quality beef, and air freighting from there will be the best proposition. Apparently principal owner Atkinson has other ideas on this and other things in connection with Gusap. Staines fed up and resigning; has sold out his interest. He and others trying to buy out Atkinson, for Staines sees a future in cattle at Gusap.

Wednesday, November 11. Completely overcast day. No rain. Breeze from NW at times.

Water Rice

Botanized in bist of forest and on the grasslands to about a mile down the creek from camp. Flora very poor. Biggest patch of forest about an acre; mainly Erythrina sp., a small Arenga in the sparse undergrowth. Big mango trees probably planted. Got an interesting lot of Cyperaceae on a silty flood bank of the creek.

The stream an open wash of gray boulders of crystalline rocks from the Kassam side of the valley ? Naturalized American plants prominent. Very abundant Crotolaria striata the food of a day-flying moth which seems to be a small Eutheisa, much like E. bella of the south central parts of Florida. Centrosema sprawling on the gravel, and some Sida and Passiflora foetida.

Afternoon spent on an excursion to Gusap to visit bat caves reported near there. Had the usual run around by local natives who professed to know the caves, and offered to guide us there, but failed to turn up when we were ready to start. We had two youths as replacements. Drove 8-9 miles to Gusap homestead, where Sid Staines joined us with one of his boys. Boys of his about the homestead suddenly forgot the whereabouts of a cave said to be close by across the Bamu River when it comes out on the plain from the Ramu Gap. We therefore followed one of the old military roads about 3 miles down the river to where some holes showed in the limestone ridge which rises close to the river on the south. The holes did not look like caves, and anyhow the river was running fast and muddy and no one felt like trying to cross it. Altitude there about 100 ft. lower than our Water Rice camp, where the aneroid has been reading 1400-1500 ft. today. Gusap air strip said to be at 1100 ft.

The grass plains very disappointing for plants. Principal grass Themeda triandra, lot of Sorghum fulvum in hollows. A shrubby Mussaenda abundant, and over one large area a small Cycas which is reported to poison the cattle. Collected a few herbs on a gravelly stretch near the river where the grass grew thinly. The plain seems mainly of fine gravel and small boulders thinly covered with blackish soil. This formation showed to a depth of fully 20 feet in the eroding north bank of the Ramu, and Staines says it extends across the valley in a broad band. At the homestead the top soil is a feet or more deep, below this a layer of black pug as described by Staines, and below that a friable pale soil which might be fertile.

Area of the cattle property is 42,000 acres. Carrying capacity a safe 5000 head under present unimproved conditions. Property has one pure bred Santa Gertrudas bull -- fine beast of good conformation and rich dark red color.

Traps are yielding poorly. Natives brought in three Scotoinus -- new to the collection for the trip. A Pteropus shot by Van tonight.

Thursday, November 12. About 50/50 sun and cloud. Strong east wind at times; sometimes a breeze from opposite direction. No rain.

Drove down the road 1-1½ miles to the Bibwoi River. This seems to be the true headwaters stream of the Markham, but at this time of year it is nothing but a dry, gravelly channel 50-60 yds. wide at the road. Unfavorable for botanizing there, so drove back a few hundred yards to big Lagasaria village, on the outskirts of which, on the bank of a small, running stream, I photographed a human head cut from the inverted butt of a coconut palm. Walked a mile up the Kassam road late in the afternoon to make more photos of the curious green-spathed banana (Musa #32476).

Water Rice-Umi River

We go on to the Umi River tomorrow. This short term camp at Water Rice was planned for the mammals it might yield. It has been poor in plants -- 40 collection numbers, 256 herbarium sheets. Nights have been too windy for insect trapping at the light, except last night, when I had a fair catch of small moths and even smaller insects. Odonata are plentiful, but in few species, not more than about 10 being caught in rather numerous specimens. Have not been bothering about butterflies.

The camp has been pleasant. Days not too hot (noted 84 F at noon today); the heat usually modified by a breeze up or down the valley. The people are semi-sophisticated, but likeable. Most of them tall, slender, and with thin features. This seems especially the case with the women. Not many young men about; probably away at work. Children of both sexes always around our camp, bright, happy, and in no way a nuisance. For the first time in many months, we heard drums at night.

Friday, November 13. Completely overcast day following much rain last night at Water Rice. Rain began about 8 p.m. from one of several scattered thunderstorms and continued, sometimes heavily, until about 4 this a.m.

Traps had to be lifted and botanical specimens worked on before we packed up for the move to the Umi. Left Water Rice at 9 a.m., arrived Umi 10:05; distance 14 miles (our Speedometer registers only whole miles; distance on the way up from Lae in June 12 miles). Altitude 1600 ft. uncorrected; this was my altitude in June. The rains of last night has run the Bibwoi River across the road and for about 100 yards below it. Rain had fallen on all the road, the surface of the black soil sticky, and throwing up against the mudguards.

Natives had been camping in the resthouse at Umi and left the place full of rubbish and ashes of their fires. Roomy old thatched structure with dirt floor. We are using it for living and working quarters, the boys are in a fly, the cook has his usual rough lean-to roofed with the very old Forest Dept. fly which we use to cover the trailer while traveling. We are about a mile up a forested gorge where a swing bridge of steel cables and Marsden matting spans the river. There was not much air movement this afternoon, and we felt the muggy heat. A second govt. thatched house contains two wheel barrows, and 10 greasy old cases of gelignite. No warning about the gelignite is posted. Probably the remains of a stock used for road blasting. Wartime fuel drums and Marsden matting lie about. Two 50-gal. drums and 2 strips of Marsden matting make us a table 8 x 2 ft. 8 in.

Zoological collections of Van's at Water Rice were 21 mammals of 9 spp.: Petaurus (peculiar (peculiar roan nether parts), Satanellus, Phalanger maculatus (white male without any markings), Hydromys, Melomys, Rattus ruber, Nyctimene, Nycticeius (new for collection) and Pteropus macrotis. Herps 322, mostly brought in by children; frogs 308 (8 spp.), lizards 2 (2 spp.) snakes 12 (8 spp.). Present totals for the expedition: mammals 2110, herps 4077, plants 3413. Six small fishes of 2 spp. were caught on bent pins from the bridge at Water Rice.

Saturday, November 14. Light rain began about 8 p.m. and continued until at least 3 in the morning. Day half overcast. Muggy afternoon. No rain before dark. Breeze moves down the valley (from c. W) most of the day, with puffs from opposite direction.

Umi River

Collected along the motor road about half way to the bridge which spans the northern tributary of the Umi. Forest poorly developed on immature, rubbly soils of gray color. However, collected 20 numbers in short time and returned to camp to build windbreaks to protect my working space. Plants included a big Casuarina from the riverbanks, a tall seral Neonauclea from flood terraces, an unusual Clematis, a common Tecomanthe with big pink and cream flowers, an oleaceous small tree which looks like a species also common at Kassam.

Mammal collecting has started poorly. Nothing in traps last night; one Syconycteris netted over our water-place stream. Numbers of giant swifts hawked over the resthouse clearing at dusk, but only one bat was seen. Flying foxes seen by Van and John, jacking after dinner, but nothing shot.

There is no village of any size within a mile or more of camp but a few visitors drifted in during the day. Efforts made to entice them get their dogs and hunt for us. As usual, the bush swarms with all sorts of desirable creatures, especially in the mountains upstream, where kapuls (cuscus s.l.) and Sikau (wallabies) are "all same pipia" (like rubbish).

Sunday, November 15. Some light rain for an unknown time last night. Overcast a.m. until about 11. Heavy rain about 2-2:30 p.m.

Botanized up the river for some good trees and other interesting plants. Big trees a common Dysoxylum of flood terraces and hill slopes, and Albizzia? characteristic of the terraces along the river. Am getting a lot of plants new to the collection but this locality has limited botanical possibilities on what I have seen so far. Difficulties with my plant drying equipment are increasing. One-inch web straps were substituted for the 1½ inch ordered by radio from Australia nearly 3 weeks ago; for non-slip buckles ordered I was supplied with, actually, tongue buckles and eye holes which ripped under any strain; absolute trash. Am gettin by by doubling 1-inch straps. Chief trouble now is the rapid breaking up of my "fibervelope" dryers. They are going to dust. I am allergic to the dust, which reddens my clothing and hands and settles all over me. Most days for the past fortnight begin for me with lips or parts of my face swollen, numb, and itching, and this sometimes lasts through the day. My hands itch, too, but do not swell. I have always been allergic to library dust. There will be no getting away from the fibervelope dust for another two weeks.

More disappointment in the mammal department. Only one specimen, a Melomys, in over 100 traps. Only Syconycteris in two bat nets. Only one bat seen in the camp clearing. Kim shot a cuscus but did not bring it home. Van got nothing from jacking. But natives came good with a Miniopteris taken from a tree hollow, and a Dorcopsis got by hunting in the forest of the hills with the dogs. Was amazed to find that Van had offered two pounds for wallabies brought in. Half of that would have been a high price. The mammal is worth two pounds to us, but money does not grow on trees and we are 95 miles from Lae. We have about 20 pounds on hand.

Monday, November 16. Partly cloudy, very muggy day. Temperature under our thatched roof at 1 p.m. 87 F. which is high for New Guinea. We are in the heat build up that precedes the rainy season. Thunderstorms around us this afternoon, but only a sprinkle in camp.

Umi River

Botanized up the river again. Interesting plants a common red Mucuna, glabrous, and otherwise different from the common species now flowering at Arau and Kassam; a Cananga not so sweet scented as most, and a Laportea, common here, with stinging hairs only on the margins of the big leaves and on the inflorescences. There is perhaps more moss in this forest than at Kassam, indicating a climate rather constantly wet.

Only mammal on the table today was a Phalanger orientalis shot last night by Van. Traplines changed today to the tongue of hills between the two branches of the river.

A small muddy pond some half mile up the river from camp, secluded in the forest and surrounded by Polygonum beds, is the best place for dragonflies and damselflies I have found on the trip. Collected there today 6 spp. of the former, 7 of the latter and saw four more of dragonflies which I could not get near.

Tuesday, November 17. The heat continues -- 92 F. today. Sunny and SE wind most of day. Some rain during last night. Much thunder in late afternoon and early evening.

Walked to the swing bridge over the N branch of the Umi (a mile or better) and from there followed a patrol track perhaps 1/3rd mile up the far bank first through low second growths then through rain forest as good as any seen here. My biggest day for plants in some time -- about 30 spp. Good male and female material of three Macaranga spp., a number of ferns and undergrowth plants including two of the Marantaceae. A small fan-palm like an Oomsis species is fairly common on the river flats in forest undergrowth; two Calamus spp. noted, both sterile.

The price offered for wallabies has had its effect - or the beginning of it. Hunters returning from the hills upstream late in the afternoon brought three Dorcopsis (heaviest 14 lbs.), one Phalanger gymnotis, one P. orientalis, one Peroryctes raffrayanus and one Echymipera kalabu, plus a green goanna and a green python. Shot at the north bridge this evening (a good place for bats at dusk) was a bat of the Hipposideros-Miniopterus group which Van can not place on sight. Not a thing in traps. But shot last night by John up the creek were Uromys caudimaculatus, Melomys and a Rattus.

Wednesday, November 18. 91 F. at 2 p.m. Heavy rain from a thunderstorm began soon after 4 and continued at least an hour. River rose 2 ft. or more. Our resthouse roof leaked badly and we had to cover up everything and sit in the dry spots. Light rain still falling at 10 p.m.

Worked into the hills up a trail to the WSW originally cut for mammal trapping and jacking. Ground rose in three terraces above the one we are camped on, then about 150 ft. more up a fairly steep spur ridge to a total of perhaps 700-800 ft. above camp. Forest above the first terrace contains some very big, buttressed trees few of the tops of which could be seen from the ground, but it was an exceptionally poor forest in the lower layers with practically nothing to be collected.

Umi River

Sid Staines called in about 5 p.m. with fresh meat and mails for us. Returning from Lae with a native riding one horse and leading another. Horses were to cross at the Umi Ford, where the Umi joins the Markham. Arrangements disorganized by the heavy rain and rise in the river. Sid still driving the road at 9:30, trying to learn whether his horses and boy had crossed safely or been washed away.

Thursday, November 19. Rather pleasant, sunny day with high of 88 F. in camp. Light rain from a thunderstorm, beginning about 4:30 and continuing late into the night.

Botanized more than a mile up N branch of the Umi in mostly second growth forest close to the river. A few more mosses added to the collection (now over 400 bryophytes). Several trees included a fine Macaranga with great 3-lobed leaves up to c. 60 x 70 cm, forming heavy shade on the low bank of the river.

Local natives out bat hunting brought in over 20 adult Dobsonia and nearly as many young ones from a hollow nursery tree which they cut down back in the hills. Nothing in traps. One Nyctimene (new for the camp) in nets, one Hipposideros diadema shot at the north bridge this evening. This new for the trip and perhaps one of the very few shot, or seen, in open flight.

Met up the trail this morning Frank Harris, Patrol Officer of Kaiapit, on a tax collecting visit to a village about an hour's walk up from the bridge. Personable man in his 30's, brunette, efficient looking, probably of senior PO rank. Had party of two armed police, medical orderly, 16 carriers, and about half dozen other natives. He spoke of a tree-climbing kangaroo, from the mountains behind Kaiapit, recently bought from natives and kept as a pet at his home.

Friday, November 20. Sunny morning, not too hot; afternoon mostly overcast; light rain from a thunderstorm began about 5:30 p.m.

At 9:10 last night we had a severe earth tremor (guria), followed by a slight one in a few minutes, and another slight one about 20 minutes later. Our hanging Coleman lamp swung about 1/5th of an arc. Heard today that the tremor was more severe at Kaiapit, lasted a timed 4 minutes, and broke half the crockery of the kiap's wife.

John drove to Kaiapit this morning to get cargo expected by air from Lae. Dropped me on the road where the north branch of the Umi issues from its gorge, near the 6-house hamlet of Waterbung (pidgin for junction of the waters). Got a fair bag of plants containing nothing very interesting except a violet-flowered Boea growing on moist, half shaded rocks.

I had ordered a drum of flour, 25 lbs. sugar, and a can of Mortein (flydope) by letter delivered to Martin, manager of Buntings, by Staines Monday morning. Asked that the supplies be sent by first plane -- this was Tuesday and I said so in the letter. There was another plane from Lae this morning. But no cargo for us. Martin, unbelievably incompetent, was the man who louised up the delivery of our cargo from New York at the beginning of the trip. We can't spare the petrol for more 30-some-mile round trips to Kaiapit. John was able to borrow enough sugar and 5 pounds of flour from Harris in Kaiapit. We will have rice to eat when our flour runs out.

Umi River

Another, worse, failure of personnel took place this afternoon. The sleeping place of about a dozen of the very rare bat Otomops had been found in a hollow branch high on a big tree in the rain forest. All hands, including the cook and one of my boys, went out after lunch to cut the tree down and collect the bats. The cutting took about an hour. Van posted himself and some boys near where the head of the tree was expected to fall. John took up a position from which he could see the hole in the branch and shoot escaping bats. What happened after that took a little finding out. While the cutting was going on several of the bats crawled out and moved about on the branch. John could have shot them but for some reason did not. Finally, as the tree began to fall, all the bats took wing. John tried to shoot then, and found he had not loaded his gun.

Van has Harris' tree-climbing kangaroo, D. matschei, bought for 2 pounds, the price Harris paid a native for it.

Saturday, November 21. Day almost completely overcast. The usual onset of light rain about 5 p.m. Rain ended early -- about 7 o'clock.

Spent the day on specimens in camp. Boys collected a few things growing near by, then hunted insects. Good catch of Odonata, at the cost of one broken killing bottle and one broken net.

Nothing in over 130 fresh trap sets. One Nyctimene in the several mist nets. A Dobsonia shot in a big fig tree on the road near Waterbung. I found this feeding tree by chewed-up remains of the fruits littering the ground. John walked to the village about an hour above the road on the north branch of the Umi to talk Tachyglossus to the natives. They know the beast and say they will go after it. This will be our last predictable chance to collect it, for the talk is that it occurs only in the mountains. So far as we know, only a mandible and bit of skin have been collected in NE New Guinea.

Sunday, November 22. Only a little sun today and a change in the weather pattern brought a shower about mid afternoon; no other rain. The weather still comes from the SE. Cloudiness seems mainly on the mountains on both sides of the valley. The valley itself is relatively clear.

Botanized in a relic forest patch on the edge of the grass plain about 3 miles back along the road towards Water Rice. Area of 3-4 acres of a drier type of forest than on the hills and in the gorge near camp. Prominent trees Pterocarpus indicus, Sterculia sp., a big Dysoxylum also in the river and hill forests, and in the lower layers abundant Arenga and a small cream-flowered Syzygium. Details in small notebook. Saw indications of both gain and loss of ground by this small patch of forest. All the grass around it had been burned this year. On the SE side the fire had eaten into the forest 10-12 feet on a face and two fair sized trees had been killed. On the sheltered NW side the fire had burned into the brushy edge, exposing a cycad, a true grassland plant, which had survived when the brush invaded the grass. Here and on the savannas of Water Rice a big staghorn fern, not seen in the main forests, is common. Looks like Platycerium grande.

Only one Melomys in traps. Natives from Tsingitrompon (r rolled), the village on the Ofim River (N branch of the Umi) visited yesterday by John, came to the rescue with 33 Rhinolophus cf. cervinus of various ages and coloration

taken from a cave not far from the village, also one Uromys caudimaculatus. An Emballonura shot at the north bridge this evening, and others down and not recovered.

Monday, November 23. More sun today but not much wind. Weather muggy, but no threat of rain this evening.

Plants on hand made me late getting into field this morning and I botanized close to camp. Still getting a few good plants by poking into corners not seen before.

One Melomys in traps. One Pipistrellus (new for camp) shot, one Macroglossus in the nets. Nothing brought in by natives.

The Markham natives have rich garden lands and this is one of our best camps for fresh food. It comes in quantity at 1d. a pound for native stuff, 2d. for produce of European type. Small white English potatoes, at least two kinds of taro including "taro konkon" or mamai of eastern Papua, sweet potatoes, sugarcane, very good pumpkins, pitpit (Saccharum edule), pumpkin greens, Chinese cabbage, excellent cucumbers, snake gourds, tomatoes, pineapples smooth and rough, pawpaws. We enjoyed pawpaws for their freshness whenever we could get them on the Highlands. Here they are full flavored and good. Not so the water melons, which like all native-grown melons I have seen, are run out and of poor quality. Also on the list should be bananas, the staple crop of the Markham people. Most are primitive, boiling kinds, but a few are "white man bananas", probably Cavendish. One boiling banana has scattered seeds about 3 mm in diameter on which one could break a tooth.

Tuesday, November 24. Weather as yesterday; no rain from all the clouds.

Botanized up the Ofim into the garden area of Tsingitrompon village. Not more than 200-250 ft. gain in altitude in distance of nearly 2 miles above the road. Travel mostly in seral forest on a low river terrace; some of this very tall Albizzia, etc. up to c. 80 cm diameter and with open scattered woody undergrowth and some abundance of large ferns. At my far point passed through a big garden mainly of sweet potatoes on the terrace, fenced again pigs, and there met some women and children. Two of the women very old; all pleasant. Kids not scared, but they knew no pidgin. This small community of Markham Valley people has been on the Ofim long enough to have bearing coconuts in their village.

Much travel on the motor road -- for thisroad. Two vehicles passed through in the direction of Kainanut before 6 a.m. In an hour or so one of the drivers walked back to our camp. The steering gear of the Land Rover he was driving gave way on the climb out of the Umi Gorge and the vehicle went off the road and partly over the edge. John with our Land Rover pulled the other back onto the road, spent most of the day fixing the steering, and we had the two men (Ken Rehder and Cliff of Kainantu) for lunch. About dark Joe Collins of Goroka turned up with some flour and sugar I had ordered from Buntings of Goroka by radiogram on Nov. 9. He was onnthe way to Lae with 2 trucks (via the Umi Ford) to pick up machinery for the Collins Bros. new sawmill on Mt. Kerigomna. The new mill at 8600 ft., one hour by Land Rover by new road from Goroka. Road up the mountain built at Collins' expense on Forests Dept. survey. Timber lease is 900 acres carrying an estimated 20 million super feet, mostly conifers, some beech. Principal conifer seems to be a Dacrydium. New areas available on the mountain when this one is cut out. Steam boiler ($4\frac{1}{2}$ tons) being installed for mill power. Not enough water (or fall) for a pelton wheel. About 10 cusecs available for hydro power but cost of transmission line and estimated 30% loss of power against this. Dieseline costs 5/10 a gallon

in Goroka and power loss in internal combustion is 3% per 1000 feet of altitude. Frame saw will be used for breaking down, as most economical in power. Hauling of cut lumber down the new road to Goroka can not begin until after the wet season. Old Kotuni mill on Mt. Otto will be continued in operation until then.

Two Echymipera rufescens, new for the collection, brought in by a Tsingitrompôn native in afternoon.

Wednesday, November 25. Cloudy weather continues; this a.m. there was a shower. Much rain from a thunderstorm beginning at 5:45 and lasting until after seven. Rain perhaps heavier out in the Markham Valley. Weather still from SE.

Collected up the small, engorged stream from which we get our camp water. The morning rain cut time short and proceeds were small. Third of three locally common stinging trees (Laportea) collected. This with stinging hairs only on the inflorescences. Another has them only on the inflorescences and edges of the leaves. The third is covered with the usual acid-secreting spiny hairs and has rugose purplish leaves.

Nothing in traps, 50 of which have been set in the relic patch of rain forest on the plain. Only a Pitta caught. Rain prevented bat shooting and jacking tonight. It also came through our old thatch roof in quantity. We have pack cloths and plastic sheets to cover everything spoilable.

Thursday, November 26. Day mostly cloudy. About 3/4 hour steady rain from a thunderstorm 6:30-7:30 p.m. The river 2-3 inches higher through the day. A traveler who crossed the Leron today en route Kainantu reported the river low. We are watching the weather, with our own crossing of the Leron in mind. We planned to close the Umi Camp on Monday 30th but will leave for Lae before that if the weather does not improve.

This was my last full day of botanical field work for this camp. Went up the Umi to the second house, then followed a trail used by the mountain people when they travel through here. Total distance rather more than a mile from camp. Most interesting plant was a small tree (#32718) with bell-shaped flowers which may be in the Loganiaceae. It grew in a deep ravine. Was stung today by a fourth species of stinging tree for the locality. This, copiously hairy, could not be found in collectable condition.

One Hydromys in a steel trap at my dragonfly pond. Nothing else in traps.

Latest trouble in the botanical department is bad kerosene, used in the drying lamps. The kerosene contains black sludge and some other substance which looks like fine grains of black iron. It fouls the generators of the Coleman pressure lamps and can not be pricked clear. Worse, it coats the inside of the generators with rubbish which is very hard to remove when the lamps are taken apart. I started the trip with a good supply os spare generators, the last one of which was put into a lamp today. Shell kerosene, being used lately, is just as bad as the Vacuum we used previously; probably comes from the same source.

Friday, November 27. Mostly sunny day with strong breeze up the valley; clouds very low on the mountain slopes; no rain.

Umi River

Sent the boys bug hunting while I did odd jobs in camp and made pictures. Odonata collection added to considerably. Must have a dozen dragonfly spp. and 8-10 of damselflies for the camp.

A good day for mammals. Fourteen specimens of 8 spp. on the table, mainly bats shot and netted last night, but including a 20-lb. Dorcopsis and a female Phalanger gymnotis with big pouch young brought in by a Tsingitrompon native. A large Miniopterus in one of the nets; the second insectivorous bat so caught on the expedition. John visited Tsingitrompon in afternoon to investigate the cave in which the natives caught the small bats some days ago; found it too distant to attempt in the time available.

These Markham Valley people do not have bows and arrows and I have not seen one carrying a spear. They have more dogs than most New Guinea people and, even more exceptional, the dogs are well cared for. All the mammals brought to us by these natives (except bats) have been caught by the dogs.

Saturday, November 28. Only a light shower last evening, but heavy rain sometime before dawn. Clouds down in our little valley at 6 a.m. Hot sun later in the day. River higher today than at any time since our arrival; rise of 6-8 inches. Must have been considerable rain on the headwaters.

Boys insect collecting again this morning. Self packing up, writing letters, etc. This is our last day in camp, and probably it will be our last day of field work on the expedition. I may find plants to collect on the way in to Lae. Van has collections to pick up from Horrie Clissold at Wau.

A number of interesting plants have been collected here, although I expected to get a few more numbers. Collection: 206 numbers including 26 bryophytes; 1055 herbarium sheets. Totals for the trip to date: 3619 numbers including 424 vascular cryptogams; 18, 144 herbarium sheets. The biggest collection I have made since the Snow Mts. expedition of 1938-39.

The Umi Camp has given us a foothills locality, which we did not have before. It has also given a sampling of what occurs on the northern side of the broad, grassy Markham Valley. Rather numerous canopy trees and lesser trees and other plants are in flower, and the season is generally favorable for botanical collecting hereabouts. Best collecting has been had on river terraces. Generally the mountain slopes are unstable, soils immature, and the flora poor. Slopes appear mainly of unconsolidated sediments, characteristic of the southern slopes of the Finisterres, and subject to rapid erosion. The turbidity of rivers such as the Umi and Ofim are an indication of this. The Umi sometimes looks gray, sometimes brown, as now, when it is higher than normal. These rivers are said never to run clear.

Mammals for the camp total 24 spp. including a Rattus brought in from traps on the morning of the 29th. There was a general dearth of rodents at this camp, only Melomys (1 sp.), Uromys and Hydromys being taken besides the solitary specimen of Rattus, which looks like exulans and was trapped beside the camp garbage pit.

Sunday, November 29. The state of the weather and the river decided us to cut time planned for the Umi by one day and we left there for Lae at 9:45 a.m. Called in at Kaiapit to return flour and sugar borrowed from the Harris's when we where short a week or so ago, had lunch on the road, and arrived in Lae about 5 o'clock. Again we are occupying Buntings' comfortable and convenient house at #5 Second Street.

Umi River-Lae

This morning the Umi was running dirty gray-brown and agood foot over normal level; we had long, heavy rain at camp last night. The Ofim too has high and had been in actual flood during the night, as shown by fresh driftwood piled on the bouldery beaches. Torrential rain had fallen during the night between the Ofim and the Meniang, flooding over the road in many places, running a foot deep through one of the numerous villages, and depositing a nice coating of fresh silt in the banana plantings of the natives. The Meniang itself had not been high. Conditions were semi-dry at Kaiapit, and progressively dry as we drove east down the broad Markham Valley. Kaiapit is said to be about on the border between the eastern Markham and Lae area with most rain in the SE tradewind season and the upper Markham and Ramu area where the big rains come in the NW monsoon season. Toward the dreaded Leron River there was dust on the road. The Leron we were relieved to find was at low stage and for our Land Rover there was no difficulty in crossing. The Leron is a braided stream running in a gravelly and bouldery bed about ¼ mile wide at the Ford. The channels are constantly shifting. Today there were two main ones both about 2 feet deep and two or three minor ones. The water is always turbid, as in the Umi, Ofim and Meniang. The Leron is the last remaining major obstacle on the road between Lae and the Highlands. It is now being bridged above the ford, at its narrow debouchment from the Finisterres.

The Markham Valley was hot and dry from the Meniang as far down as Nadzab (great military air base in World War II). Below that the valley is filled with lowland rain forest, and even in the forest conditions were dry and small swamps by the roadside were dry or with little water in them. Lae, as usual was not short of rain. Annual rainfall there is nearly 200 inches.

Particulars of Umi mammals collection: 112 specimens, 24 spp. New for the collection: Dorcopsis, Echymipera rufescens, Dendrolagus, Rhinolophus?, Hipposideros diadema, insectivorous bat (genus?). The Dendrolagus, collected by PO Harris, was from Gwaisiram, headwaters of the Waffa River, eastern fall of the Kratke Mts. It looks like D. matschei, but this species is supposed not to occur south of the Markham-Ramu Valley and comparison may show differences. Locality information obtained only today.

Monday, November 30. Day spent in preliminary arrangements for closing the expedition, examining collections stored in the Forests godown. Everything apparently in perfect condition with the exception of mosses in the top of a field box which must have been stored under a leak in the godown roof. Four packets badly molded.

Have arranged for Burns Philp to handle the shipping of the cargo.

Laurie Crowley of Karanka and Crowley Airways came good with the gift of two very fine examples of ancient stone objects: a beautifully scalloped "mortar" and a "rain stone". The latter, roughly round in shape, looks like a grinding stone with two indents for finger holds. Have not seen anything like it before. Crowley has another of these rain stones, so called because the moderns, when in need of rain, cast them into the Wanton River. A recent semi-drought came about because Crowley removed the stones from Karanka, where they belonged, to Lae.

Have Qantas air bookings out of Lae for Port Moresby for December 10, on to Cairns December 13. Hope to be able to make these tentative dates. Van has arranged for a visit to Fred Shaw Mayer at Nondugl on the Western Highlands. I am booked for a round trip flight by MAL to Rabaul via Goroka, Madang, Wewak, Momoto and Kavieng. This will give me an idea of some important New Guinea areas of which I have no personal knowledge at present.

Lae

Tuesday, December 1. Van and John left for Wau by road this a.m. to see Horrie Clissold, who has been collecting mammals for us as a personal interest.

Made good progress with the packing. The Dept. of Forests is making crates for special cargo which will not fit into the crates we brought with us from New York, and stored for the return freighting. For the botanical collection I have bought for 3/- each from a Chinese Storekeeper a lot of big packing cases from which, with some rebuilding, I can get enough space. The cases have already been several times rebuilt. Their last voyage was from Hongkong.

Visited this evening Dick Lowe, friend of the Webbs of Cairns, i/c Electrical Undertakings Branch, Dept. of Civil Affairs. Interested in REA in the USA.

Wednesday, December 2. The full day spent on the packing job, which is now well in hand as far as I can take it until Van does his part. The Dept. of Forests has come to our rescue again, this time in the matter of case nails, which were available only in big, heavy sizes at the commercial houses.

Was visited by Hugh Osborne of Rossel Island and M.V. Yelangili. He was of great help to us in 1956. Today he brought me two pieces of ebony from Woodlark Island. Told of an outbreak of cargo cult in Mud Bay on Goodenough Island. It was of the violent kind. Plan was to murder first the sisters at the Methodist Mission at Bwaidoga, then Ann and Ailsa Gribben, Clem Rich at Nuatutu, Father Abbott of the Catholic Mission, and finally Dicky Ricks at the north end of the island. Clem Rich got word to government by radio and about midnight a detachment of armed police arrived from Samarai and broke up the movement. Clem's native wife or what have you, whom he stole from a corporal of police, probably saved the situation. Government is trying to soft-pedal the happening. Two of our boys are from Mud Bay.

Thursday, December 3. Van and John did not return until 3:30 in the afternoon. Went as far as I could with my part of the packing -- some of it had to wait until after Van's return, and now that can't be finished until I return from Rabaul late Saturday.

Radioed Department of Agriculture, Port Moresby for permit to export 2260 mammal, 4105 herpetological, 50 bird specimens and an estimated 1500 ectoparasites and 50,000 insects. Radiogram to Government Anthropologist, Port Moresby requesting permit to export four stone mortars and one grinding stone. Have applied to Chief, Division of Botany, Lae, for permit to export 3621 botanical collection numbers represented by 18,144 herbarium sheets.

Friday - Saturday, December 4 and 5. Spent on an air trip with Mandated Airlines, on their Rabaul Courier flight, from Lae to Rabaul and back. Total flying time about 15 hours. DC 3 plane on one of the so-called "Bung Run" flights. Seats lengthwise along the fusilage; scant comfort. Cargo stacked under nets down aisle. Many native passengers, some of them dirty, covered with tinea, and not wearing shirts. Dogs, drums, betel-nut and all the rest of it.

Places visited: Goroka, Madang, Wewak, Momote (Manus), Kavieng, Rabaul. We were supposed to do Lae to Rabaul on Friday and return Saturday, but Rabaul strip was closed by rain and we spent Friday night at Kavieng. Stayed with DC

Lae-Rabaul-Lae

Mick Healy and his wife Molly; Mick was a young patrol officer i/c our police escort on the Fly River in 1936. He has been District Commissioner, Kavieng, for about four years. Has at his house a remarkable stone mortar and pestle from New Hannover; mortar unlike any I have seen from New Guinea and looks European. He has promised it to the new museum in Port Moresby.

The long flight gave me a good idea of most of the country on the route. The season is on the change from SE to NW, much rain had fallen on Manus, New Ireland and Rabaul, and the lower Sepik and Ramu were pretty well clouded in both days. Both running muddy; probably they are never clear. With the dying of the SE trades, there was not the slightest break on the extensive reefs off the south coast of Manus.

Considerable amount of air traffic and commercial activity at all places visited, except Manus. Momote was a military base in World War II; now decrepit. Japanese are doing salvage work there, having finished a big project at Rabaul. We carried five of them from Kavieng to Momote. Healy says relations are fairly good with the European population. The Chinese hat them and will have nothing to do with them. The whites were evacuated to Australia when the Japs struck south into the Pacific in 1942. The Chinese had to stay. Very numerous bomb craters at Wewak and Kavieng. Pillboxes all over the place at Kavieng. The Japs had 35,000 on New Ireland, a parachute division at Wewak.

Details of trip in small notebook #2.

Sunday, December 6. Almost every night since our arrival in Lae heavy rain, usually with thunder, has fallen. Last night's continued into the middle of the morning. Other days have been fine.

My day spent on paper work in connection with the cargo, paying accounts and writing letters. Van and John were among about 30 guests of Hugh Osborne on a trip on the Yelangili II to Salamaua.

Monday, December 7. Various delays in the crating job. Stencils; tops for packing cases wrongly cut, etc. The job should be finished tomorrow. Have permits to export the botanical and "antiquities" specimens. Have not heard from Dept. Agriculture on the permit for zoological specimens.

Tuesday-Wednesday, December 8 and 9. Packing was finished Tuesday and that evening we gave a dinner at Hotel Cecil for the Dept. of Forests staff; 14 at table.

On Wednesday the Lutheran Mission decided not to buy our Land Rover. It shows signs of wear and tear (naturally) after 8 months and 7600 miles but is still a good vehicle worth more than the £900 I would take for it. Mission has decided against buying any more 2nd hand vehicles, and they have the money for new ones. The Mission had 2nd preference on the Land Rover. John Collins had first, but could not afford to offer more than £750.

and

Ken Wynn (our transport man in 1953, now/for several years past manager Warisota Plantation for Bunting), arrived in town and is staying with us.

Van left for Nondugl on Western Highlands to visit Shaw Mayer; will fly after that direct from Goroka to Port Moresby.

Lae

Dinner at the Lee Ashton's; John, Ken, and Brown and wife of Burns Philp also guests.

Thursday, December 10. Day spent at the Forest Herbarium on Vacciniaceae and conifers. Old mold on some specimens, but collection generally in good condition. Duplicates of my collections are important part of it (including many of the 1938-39 expedition). Lot of the 1956 collection (from Leiden) now being mounted.

Buntings of Goroka will buy the Land Rover for £900.

Have word that after arrival at Goroka yesterday on regular Wednesday govt. charter flight, Van had to charter a Cessna to get to Nondugl.

Friday, December 11. Very hot weather for last 3 days; maximum 91° F. yesterday.

Our cargo - 13 crates and boxes for the Museum, 5 boxes for the Smithsonian - was deliveredat the wharf this afternoon by Forest Dept; semi-trailer for shipment to Sydney per "Malaita" on the 14th, thence to New York by Pioneer Line.

Rev. M.E.G. Cruttwell of Menapi due to arrive tomorrow by air to talk botany with John Womersley and me.

At the main wharf this afternoon I saw the Arfak, Dutch vessel of about 100 tons, which has opened a new trade between Hollandia and this Territory. A large part of the trade is in Lae beer. The ship carries great numbers of empty bottles from Hollandia. While the ship waits at the wharf, these are rushed to the brewery and refilled. The Lae Brewery struggles under a shortage of bottles. Until rather recently they refilled the bottles in which Australian beer was shipped to New Guinea. Now the Australian beer comes in cans. The bottle shortage has become acute and the price for empties has gone up to 5 pence each.

Saturday, December 12. Cruttwell arrived by Qantas from Port Moresby about 8:45 and is our guest at the Bunting house. He and Womersley and I spent the day looking at plants he has collected recently on Mt. Dayman and other parts of his district. Also walked through the Botanic Gardens; photographed orchids, etc. Crut has from the Aneita peak of Mt. Dayman one of the high altitude Cyatheas, which looks like C. macgregori.

At Womersley's house after dinner Crut showed numerous fair to very good quality Kodachromes of orchids, rhododendrons, etc. Womersley showed some made on a recent visit to Hollandia, Manokwasi and Biak in Dutch New Guinea; a few from the same places by Don Mackintosh, Regional Forest Officer. Was surprised to see that postwar Manokwasi is a sizable town. It is a Dutch government achievement with hardly anysettlement or industry to support it. Large stands of Kausi pine (Agathia) in the interior of Japen Island are likely to be exploited by Guinea Gold Comp. of TNG. on a cut-out and get-out basis. Forest policy of Papua - N. Guinea is strong on conservation. The Dutch, in fear of losing their territory are taking what they can as fast as they can.

Lae-Wau-Lae

Sunday, December 13. Day spent on a visit to the Wau Show with Womersley, Cruttwell and young Jonathan Womersley. Flew on a Qantas special DC 3 with "high density" seating (44 passengers up, a couple of extra down from Wau). Flying time 35 min there, 25 back.

All effort was put into the recent Lae Show at which Wau won first prize for its district exhibit, therefore European exhibits were poor today. Native exhibits good. Several hundred natives of different tribes, including Kukukukus, put on dances. Horses and humans in ring courts. Met several people I wanted to see, including Joe Bourke, last seen at the Fly River in 1936.

Using an official Land Rover and driver, Cruttwell and I went up the Kaindi road to the 5800 ft. lookout. Collected for van Steenis fruiting material of a common Pratia which may settle the question of whether Pratia and Lobelia are separable taxonomically.

Monday, December 14. Busy day on business matters. Called on District Commissioner Niall. Saw our three Gosiagos off for home on the Bev in early evening (the boat grossly overloaded, big cargo of drums of gasoline on deck, about 40 native passengers, sponsons half under water). Visited Cruttwell on the Malaita, on which he was to leave for Samarai late in the night. Our expedition cargo was in cargo nets on two trucks ready to go on board the Malaita when I left the wharf at 9:45.

Shipping bills, etc. have still to come in, so I left my bank account (Bank N.S. Wales) open, with a balance of about £2400. Signed an application for the export pf the residue in U.S. dollars.

Lae has been very hot for several days. No cooling rain. The unpaved streets (most are that way) very dusty.

Tuesday, December 15. Left Lae by Qantas DC 4. about 9:40 a.m. and arrived Port Moresby 10:50.

Much clouded and could see little until we were close to the Papuan coast. Alan Willis met me at the airport. Big improvements there; new strip said capable of taking heavy jet planes; new terminal building which shows lack of imagination in design and is already too small for the traffic. The coastal hills very, very dry. The small trees of the savanna seem to have dropped most of their leaves; hardly any grass. But town colorful with orange-red Poinciana in full bloom.

Staying at Papua Hotel ("Top Hotel"). Afternoon spent at Konedobu visiting friends in Government (Joe Szent-Ivany, Dorothy Shaw, Ted Gray, Bill Sutter). Dusty Miller of Samarai at the hotel.

Wednesday, December 16. Morning spent on official calls at administration H/Q at Konedobu, afternoon on letters and shopping. First call on Suttee, Director of Forests. Talk included the subject of a very serious loss of departmental personnel due to recent increases in living costs, the new income tax, and better conditions of emplpyment now offering in Australia. Losses include chief clerk, chief air photo specialist (whatever they are called), typists, etc. with years of service. The Great Papuan Plateau of the Strickland watershed will be examined for timber soon (big stands have been seen from the air).

Lae-Port Moresby

Next call at Department of Agriculture, where Convoy, extension service chief, is Acting Director. Seems very competent and well informed. New Guinea coffee very irregular in type and quality. Climatic and edaphic. Good liquoring coffee being produced on terrace lands on the Highlands; product of river alluvial soils there is poor. Natives of Daga area producing an excellent coffee. Lowland arabica plantings, being pushed as a native cash crop in Samarai area in 1956, now being replaced with robusta. Mrs. Andersen, head librarian of the dept., very pleasant. Fair collection of books and periodicals. Few periodicals bound. Acute shortage of space.

G.T. Roscoe, Director of Education, was known by me in Gulf of Carpentaria in 1926. Probably a thinker rather than a doer. Student of New Guinea history. Sees urgent need to uplift brown brother educationally and economically. Has recently published a book, Our neighbours in Netherlands New Guinea, (Jacaranda Press).

Morris Rapson, Chief, Division of Fisheries, is another who appears over zealous in uplift of the native. Has a special fund for financing native fishermen in purchase of nets. Business houses were making too much profit. Nets (nylon, etc. of latest types) now available to natives at non-profit prices. Free drying, etc. Have from Rapson a copy of Ian Munro's recent checklist of Fishes of the New Guinea Region.

Dinner party at the Willis house. Other guests (with wives) were Fred Blanch (regional manager, Bank N.S. Wales), Greg Spence (sales manager, Steamship Trading Co.), Arthur Cooper (security officer; an Englishman with long experience in West Africa), and a barrister whose name I have forgotten.

Thursday, December 17. Another morning at Konedobu, seeing Dr. John Gunther (Acting Administrator), Evan Champion (Commissioner of Land Titles), Julius (Government Anthropologist), Alan Roberts (Director of Native Affairs), "Speed" Graham (Acting Registrar of Native Cooperatives), and Joe Szent-Ivany (entomologist).

Gunther interested in our work. Gave a good, straightforward outline of the Kuru research situation. A conference of medical research men, etc. being held in Australia next week to examine the whole matter, and try to rectify the present unpleasant relations between the Australian and American research teams. Scraggs (Director of Health) and Julius going from here. Trouble stems largely from a personality clash between Gajdusek of U.S.A. and MacPherson ?? of Australia. Australia had the opportunity to lead in the research, but neglected it. Gajdusek tries to hog the field and is a generally unpleasant person, with whom only Zigas has been able to work in Kuru research. Gajdusek considered academically honest and one of the great medical brains of today by everyone concerned excepting perhaps MacPherson ??.

Champion ill with pernicious aenemia. Told of a man of National Bureau of mapping (Canberra), named H.R. Johnson, who is climbing the high mountains of P-NG in connection with a survey which will begin next year with some new and very accurate instrument for measuring distances. Johnson climbs the mountains, finds what angles can be made from them, and erects cairns when stones are available. Has climbed Mt. Victoria, spending five days on top and is about to climb Mt. Suckling. No white man has been on top of Suckling. Johnson a strange type. Lives on kippered snacks. Is alone on the project with natives,

Port Moresby

who consider him crazy and look after him well. Next year's survey would provide a good opportunity for a botanist to collect on hitherto unexamined high peaks.

Julius told of an American archaeologist and her ethnologist husband who have recently started work on the Baiyer River in T.N.G. The first archaeologist to visit the country. Interest is flagging in the proposed new Port Moresby Museum. It now occupies two small buildings in Konedobu and contains only ethnological materials. Half of the old European Hospital in Port Moresby proper being made available (Legislative Council has other half) but this only a short term makeshift.

Roberts is retiring next year. Was at the Nissel Lakes on a recent visit to Dutch New Guinea and spoke of hillsides there colored with orange and white rhododendrons. The record of Archbold Expeditions will ensure the cooperation of Native Affairs, whoever of the present senior staff takes over the Directorship next year.

Graham had an investigator (lady) from U.N. in his office and I had only a short meeting with him.

Szent-Ivany gave odds and ends of entomological news. Explained the position of Brandt, the butterfly collector. The PNG administration pays him £1000 a year and takes the butterflies collected (they are being housed in Canberra for the time being). The Bishop Museum puts up £1000 and gets all other insects collected. Brandt pays all expenses except air freight, which PNG pays.

Called on Tom Grahamslaw (Collector of Customs) after lunch. Came to Papua as a boy in 1911 and will retire next year. Keen student of world affairs and the Australian investment market. The present chaotic state of affairs under which the Dept. of Agriculture shares with Customs control of export of zoological collections may end soon with all powers given to Agriculture. Agriculture now states whether or not it objects to an export, Customs follows this lead as regards permits (that is, in practice).

Dinner with Rapsons at their home in the Koki area.

Friday, December 18. Dry season is breaking here. Some rain from a thunderstorm last night. Light rain c. 6-8 a.m., heavy after dark.

Out to the airport at 6 a.m. to meet the Buntings, who came up from Sydney to spend Christmas at Goroka. Their plane an hour late. E.V. Crisp, Managing Director, Steamships Trading Co., also there. Says a jap in town trying to buy timber for export to Japan. Any quality acceptable soft, hard, anything.

Called on Willis and Michel at Steamships. Miller and I to Koki Market in afternoon. Only moderate activity, probably due in part to today's strong SW wind, making rough weather for canoes. Quantities of crayfish from the reefs - raw and cooked. Fish mainly cooked for the native trade. Ditto pig and dugong. Bananas, yams, taro, wallaby meat (cooked), much betel-nut and betel pepper sticks. Flys bad; fish vendors waving coconut leaves etc. to keep them off. People clean, partly in European-type dress, placid and friendly.

~~Kaxx~~Port Moresby-Cairns

Dinner at "House Champion" (a govt. senior officers' mess) with Dorothy Shaw. After dinner show of Agfa color slides made by a young Crown Law man on a tour of the Mediterranean and India; one of two young lawyers of the service who have recently completed a course in international law at the Hague. Another of these men (McQuillan ?) a keen student of N.G. history. Showed me a copy of Greenop's "Who travels alone", which is a biography of Michluho-Maclay.

Saturday, December 19. Some showers in morning; rest of day broken clouds.

A good part of the day spent in drafting an outline report on the expedition for NSF. The terms of their grant require a report at end of the year.

Visited Koki Market again in afternoon (there is nothing to be seen in the morning). More people and more produce than yesterday. Police were breaking up a fight between two native women when I arrived by taxi - the old triangle. White man of the British Foreign Bible Society selling the holy works and tracts in numerous translations; saw no actual sale. He told me that translations have been printed ~~printed~~ in about 200 languages and dialects in P-NG. All fish and crays that I saw were dead, though fresh looking. Government some time ago attempted to organize the refrigeration of sea foods - buying it from the fishermen on the reefs, but the fishermen asked more on the reefs than they could get in the market, on the grounds that their catch was really fresh out there and worth more. The women folk have taken over the selling in the markets lately and as a consequence a good cray which could formerly be had for 2/- now is sold for 3/-. Good big betel-nut sells for apenny each. Much of the garden produce is brought from the Rigo area, 40-50 miles east of Moresby, by native-owned trucks.

Sunday, December 20. Left Cairns on Qantas DC 4. 12:40 arrived Cairns 3:20. Qantas has a monopoly in air traffic between P-NG and Australia and sometimes acts that way. Saw air freight parcels being grossly mishandled, and unloaded onto wet terminal a day or two ago. Today my pick-up at the hotel failed to materialize. Finally they sent a taxi to take me the 8-9 miles.

New passenger terminal at airport, built this year, badly designed and already too small. Accoustics very bad. Several farewell parties going on. Almost impossible to hear the public address system in the din. Many people leaving for Christmas - on a Constellation to Brisbane and Sydney, on DC 4 to Cairns and Townsville.

Was met at Cairns by the Bates, Webbs and Brooks. Staying at Hides Hotel - much deteriorated since 1948 and 1953. Had the Bates for dinner and they drove me to Bowen Waters to see Gordon Stephens later in evening.

Cairns about as hot as Pt. Moresby. Not nearly as bad as Lae.

Monday, December 21. Northerly weather and the town sweltering. Worst day of the year, it is said. Max. temperature.

Day of visiting in town. First Ernie Stephens, Horticulturist, Dept. Agriculture and Stock. Joe Wyer, Secretary, Cairns Harbor Board. Fielder, who is honorary sec. North Queensland Naturalists Club and looks after the herbarium. Tom Webb, in wholesale electrical appliance business.

Cairns

Two big ships in port, one loading sugar for the East, the other timber. Wharf laborers as troublesome as ever. The ship that called for timber may have to leave without the cargo. Wharfies demanding two slingo per hoist while the ships captain insists that one is adequate and safe. Cairns now handicapped in the sugar trade because the governing authorities ruled that it be the one port in North Queensland not mechanized to handle sugar as bulk cargo. It was necessary for the Eastern trade that one port retain the old system of handling manually in bags. Cairns sugar export away down and only about half the storage space in use. Move being made to use spare space for a new chilled or freezer beef trade.

The herbarium presently housed in a temporary Harbor Board building on the esplanade. Wooden cases holding Merrill-type cardboard boxes. Between 11 and 12 thousand sheets. Condition apparently good except for several cases in which rats had done much damage - eating away the edges of the mounting papers. Fielder has no knowledge of plants. Merely maintains the collection under Stephen's tutelage, and looks after the small library. Library entirely without any general reference works on plants. Fielder therefore unable to place new accessions in families, if the plants are exotics not included in Bailey's Queensland Flora and "Comprehensive catalogue - ". I wrote family names on the labels of 140-odd sheets recently received from an amateur botanist in Florida who wishes to establish exchange relations (Dr. Paul Schallert (M.D.), P.O.Box 262, Allamente Springs, Seminole County). Schallert's material largely roadside rubbish, the herbaceous plan ts usually without roots.

Tuesday, December 22. Most of morning spent at Alf Reed's "House of 10,000 Shells." A tourist attraction featuring corals as well as sea shells. The corals unnamed. Shells include many exotics; named; large study collection not on display. Reed is long-time (11 years) president of the North Queensland Naturalists' Club. Club has about 140 members; attendance at monthly meetings 30-40. Has a junior branch. Monthly field excursions. Only members interested in botany are Stephens and an English Ph.D. (Thorne or Thorpe) who has some sort of job with the big new Tinaroo irrigation scheme in the hinterland.

Dinner with the Gilbert Bates at Meringa Sugar Experiment Station. Meringa, c. 11-12 miles south of Cairns. Other guests Dick and Mrs. Watson and son Errol. Watson a building contractor. Has built some of the Tinaroo works and is presently building military installations at Wewak (built new hospital at Lae and Port Moresby). Meringa staff includes 17 men classified as officers. Arrived too late in the day to inspect the station.

Wednesday, December 23. Day spent on public excursion to Green Id., on Great Barrier Reef 16 miles from Cairns, on Hayles Brass Mingela. Probably 100 people on board. Low coral island 32 acres wooded with growths approaching rain forest. Torres Strait pigeons nesting in nutmeg trees. National Park. Camping ground. Hayles Brass have cottages and a restaurant. Rain the only water supply. "Do not waste water" signs on the numerous tanks. Good underwater observatory run by a bloke with a cropped gray beard and tallowed skin named Lloyd Griggs. This on the living coral reef. Griggs and his partner, Vince Masoff, have applied for a shore base of 1 acre for a marine garden. Missed meeting a writing celebrity, Noel Monkman, known to all my friends, who lives on the island. Saw an unusual looking, podgy man with cropped gray beard but did not know his identity. Another Green Island attraction is a ride over the reef in a glass bottomed boat. Seats arranged beside four wells with floating glass windows.

Cairns-Kuranda

in their bottoms. Boat too crowded. Engine failed on the reef and could not easily be re-started. Women with shady hats and parasols, hanging over the well, spoiled the underwater view at my first position. The hand movements of a party of mutes at another well, including a most exitable little woman, were a distraction at another well.

Dinner with Tom and Anny Webb at Whiterock, 11 miles south of Cairns in a cane-planted valley which runs parallel with the coast between two mountain ranges.

Thursday, December 24. By rail motor to Kuranda, center of an old settlement; and resort place at c. 1200 ft. and c. 20 miles by rail from Cairns. Route first through green, orderly patchwork of cane fields, then slowly mounts face of the ranges and in to the Barren Gorge. Beautiful scenery. Our numerous holidaying passengers upset by two go-slow young men who took a good half hour to load a few cases of oranges at a stop on the lowlands.

My first impressions of this visit to Kuranda are mixed. On advice of some Cairns friend I'm staying at the Fitzpatrick Hotel. The other hotel (the Kuranda) looks better from the outside. Fitzpatrick pretty crude. One climbs to get anywhere from the railroad station. Finding no taxi, and having a heavy suitcase, I set about phoning the hotel. Phone call costs fourpence (c. 4 cents), in pennies. Had only one penny in my pocket. The railway ticket seller would not help with change. A barmaid in the "refreshment room" did. Learned from the hotel that there was no taxi in town, and the hotel owners' car was away somewhere. Was helped to the pub by a kindly tourist who, most surprisingly for North Queensland, declared himself a teetotaler when I invited him in for a beer.

My visit to Kuranda is mainly to see the George Vievers, Senior, fine people with whom our party spent a week at the old Speewah homestead in 1948, and with whom I have corresponded ever since. Young George V. drove me out the eleven miles to visit the old people this afternoon. Also called on another son, Maurice. Made a diversion for George to cut a young cypress pine for a Christmas tree. Back to town in heavy rain which lasted well into the night.

Friday, December 25. Mainly eating, sleeping and reading for me. The Barren River, once a beautiful clear stream, has after last nights rain the color of tomato soup and much the same consistency. Its headwaters are in rich red-soil farmlands of the Atherton Tableland, which one does not have to see to know are eroding away. The Kuranda township water supply is pumped from the river. It is flowing red from the taps. No bath for me this morning. Rain water for drinking is stored in galvanized iron tanks.

Christmas dinner at the hotel was lavish and very good. The house is famous for it. Many guests from Cairns and the Tableland. About 300 served in several sittings.

Saturday, December 26. More or less showery day along the edge of the range, where Kuranda is situated. Heavy, gusty rain from c. 6:30 on into the night. This is from a cyclonic disturbance centered in the Gulf of Carpentaria. The beginning of the wet season.

Kuranda

With Evan and Pat Balnaves, visitors from Townsville whom I have got to know at the hotel, drove in the morning to Mona Mona Mission, c. 18 miles NW of Kuranda. Good road, mostly through rain forest of the range crest. Mona Mona a Seventh Day Adventist Mission to the aborigines. Mission pays personnel, govt. apparently provides considerable financial support. Arrived in rain. Dug out the superintendent-pastor, Mr. Leitzner. A not very enthusiastic man who told us that his 320 charges were camped 8 miles away on the Barren on annual walkabout lasting two weeks. Mission sited in poor open forest on a ridge crest. Substantial staff dwellings, school, clinic, and modernistic new church. Abos live in small 1-2 roomed family houses of European type, raised on high stumps, and without verandas or window awnings. Settlement looked bleak in the rain; must be most unattractive on a hot, sunny day. Among first things I noticed were a butchers block and cold chamber. These "7 days" eat meat. Vegetarianism not required for fellowship in the church; only certain unclean beasts, such as pigs and rabbits, must not be eaten, according to Leitzner. The mission seeks to adjust the abos to civilized life. Encourages them to go out to work. Engages in sawmilling and cattle raising. Many abos employed and paid by mission, which has store, bakery and butchery and sells food to the abos. Schooling up to at least 8th grade. Halfcastes and other mixed bloods learn faster and generally are more cleanly in habits than the full bloods who form majority of population. People good at art and music; most mission girls play the piano quite well; men prefer banjo and mandoline. Greatest trouble is in enforcing, by frequent inspections, cleanliness in the houses.

For some years the mission milled timber for sale in the open market - until compelled by industry pressures to unionize their labor. Timber now cut only for mission use. Effort to grow vegetables for the station has been given up; a truck load brought from Cairns weekly. Place seems highly institutionalized. Staff of superintendent 2 married school teachers, trained nurse, engineer, carpenter, and two in the office - all whites. Mission established over 40 years ago. Besides the Kuranda tribe (Negrites), residents include diabetics and post-Hansen patients from all over North Queensland.

Afternoon spent on a visit to the new Tinaroo high dam on the upper Barren. Dam 130 ft. high x 1790 ft. long, ponded area 13 sq. miles. Built to irrigate 1100 new farms growing tobacco, small crops, tropical crops and fattening beef cattle. Present surroundings raw and crude, but a start has been made in landscaping. Dam built at £1 million under estimated cost. Expected to fill this wet season. Ponded area not properly cleared. Foul smell of rotting vegetation from a great valve through which water is released to maintain flow for a hydro-electric plant under the Barren Falls. This drive to Tinaroo, through the Mareeba tobacco lands, and rich red volcanic corn lands of the lower Atherton Tableland, was with Gil and Rose Bates, who drove up from Cairns for the afternoon.

Bates informed me of a recent report of the legendary (?) "marsupial tiger" having been sighted in the Julatten-Mt. Lewis area. A big area of high country on Mt. Lewis now accessible by a forest access road.

Sunday, December 27. Much rain from the cyclone last night; some heavy, gusty showers today. No excursions.

Kuranda-Cairns-Brisbane

Monday, December 28. Returned to Cairns, George Vievers having business to do in town and driving me down. Some messing about over an air booking to Brisbane. A seat on a TAA Viscount was booked to me, then cancelled because of a plane said already full. Was transferred to ANA, but had to follow the thing right through personally before I got the ticket.

Visited Mrs. Bert Connell (Mary) who used to be at Evon Range. Also saw Tom Webb, Frank Moody and George Milk. Did various farewell telephoning.

Staying at Central Hotel. Much better than Hide's.

Tuesday, December 29. Left Cairns by ANA Viscount turbo-prop. 8:12 a.m., landed for 25 minutes at Townsville, and arrived Brisbane 11:45. Dirty,cyclonic weather from Cairns to well south of Townsville, and we flew high. Only glimpses of the country through clouds.

Afternoon spent at the Queensland Herbarium. Only senior man there was Blake. Also there was Bob Thorn from U.S.A. (first met here in March), bptany professor U. of Iowa working on a new classification of the flowering plants; has Fulbright grant and now a NSF grant.

Through pressure of work, Blake has had to give up to Kern of Leiden the revision of Scleria for Flora Malesiana. Work was well advanced. Apparently van Steenis was pressing too hard. Blake says that Eichler, now Govt. Botanist (or equivalent) South Australia, could stand van Steenis for just so long as a staff member of Flora Malesiana. Heard recently that van Royen has quit.

In Brisbane Everist has been ill and Blake and Smith are overwhelmed with increasing work. Not much has been done on a report on my 1948 Cape York collection, which has been here (1st. set) for 10 years. Everist promised in March to make all effort to clear up the collection before. Perry of Harvard retires. Perry goes out in February. She badly wanted to distribute the Cape York duplicates before that time.

Van went to North Queensland on December 21 without leaving me any note on his changed plans. Am writing him at the Australian Museum, Sydney - the only mailing address I have. Van apparently worked for about a week at the Queensland Museum - I learn by phone.

Staying at Lennon's Hotel pro tem.

Kuranda-Cairns-Brisbane

Wednesday, December 30. My sister Edna Henderson having returned from a few days at the seaside, I moved out to her house in the suburb of Hawthorne this morning.

Most of the day at Queensland Herbarium. Staff on alternating duty through the holidays and Lindsay Smith there today. Met at herbarium Dr. and Mrs. L.S. Dillon of Texas A. & M. who are about to return home after a year in Australia on a NSF grant. Dillon an entomologist now working on a classification of mammals. Based at Queensland Univ.

Learned something about McDougal, head entomologist, Dept. Agriculture & Stock, and officer concerned with administration of fauna protection acts. Impossible fellow according to Smith, who has a brother, an entomologist, working under McDougal. Vague and indecisive about everything but his antipathy towards America and Americans. Smith warns me to have nothing to do with him. McDougal was the man found so difficult by the Spalding-Peterson Expedition.

Thursday, December 31. Day spent at the Herbarium and in a round of the bookshops. Finished, on a Herbarium typewriter, my par-end and project-end report to NSF and put it into the mail.

Brisbane (population plus 500,000) is well supplied with bookshops, but no longer has a good dealer in second hand books. Barker's used to be a place where one could pick up good things, well classified; now sells only school and college text books second hand.

Days in Brisbane are hot - into the high 80's, but nights are pleasantly cool.

Friday, January 1. With the Henderson's to Boonan, about 60 road miles SW of Brisbane. Farming and Dairying area. Very prosperous. A season of ample rains and country looks very well.

Saturday, January 2. Dinner in evening with Larry and Mrs. Dillon of Texas A&M. Both entomologists originally from Reading, Conn. As a staff wife, she has been working in forest genetics at A & M. On NSF grant, he for a year has been working in Australia (mainly Queensland) on relationships of mammals. Considers differences in soft parts more fundamental than teeth and claws. Studying heart, brain, reproductive tract, etc. So far only assembling materials. No publication as yet. Dillons return to U.S. by Matson Line ship leaving Sydney January 20.

Sunday, January 3. Afternoon with the S.T. Blakes at The Gap, new suburb in the gap through which Ennogera Creek flows between Mt. Coot-tha and the Taylor Range. Blake is 1st assistant Govt. Botanist. Has very good young planted collection of mainly Australian plants. Some of the plantings (Plechanthus, Euryctes, etc.) for taxonomic purposes. Children Betty (c. 11), Malcolm (c. 8).

Blake on an ANZAAS committee which has reported on the great need for a new Flora of Australia. Only published work is Bentham's 7-volume Flora Australiensis of 1863-1878. This contains c. 7800 spp. vascular plants; over 15,000 now known. Estimated that special full-time staff of c. 20 would take about 20 years to do the job. Flora to include what is known of anatomy,

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embryology, morphology, ecology, palaeontology, chromosome numbers, genetic behavior, etc. All treatments to be monographic or revisional.

New South Wales has a new state flora under way. In Queensland, Blake & Smith are preparing a similar project. First contribution to be printed will be Smith's monograph of the Myoperaceae, now nearing completion.

Monday, January 4. A very hot day. Heat wave from the dead "center", bringing temperatures of over 90° to the coast, up to 112° in west Queensland.

Sundry calls included one to the Queensland Museum where I talked with George Mack (director) and Don Vernon. Mack as cocksure and opinionated as ever. According to his talk there was nothing worthwhile at the museum before he took over. Now 5 years from retirement age of 65. Vernon, though loyal to Mack, is fed up with him; Museum has reached a minor peak beyond which it will not go under Mack; chief trouble is in personnel; Mack will not take on new hands; after 15 years as director, has only one curator (Jack Wood, palaeontology) on staff; appointments were recently open for two curators, none was appointed (Mack says applicants were not suitable); 34 men applied for a less recently advertised assistant-preparatorship, but Mack made up his mind about them sight unseen and would not even interview any of them.

Present show piece of Museum is a Queensland state centenary (1859-1959) exhibit; well done by modern techniques including use of colors (work of Don Vernon). Exhibit includes fine collection of color-tinted photos made by Daintree, first govt. geologist, in 1864-70. A selection of these should be published (shots of physical features, early mining, settlement, and life in the bush).

From the museum I went to Dept. of Agriculture & Stock to see Fauna Officer Chas. Roff. He away on vacation. Talked to a young man in his office. Have copy of the new Act (1954), and a summary of it by Roff. Act contains no specific provisions re scientific collecting. Power to do almost anything at all as regards protected fauna is left to the Minister. Rats, mice and marine mammals are not fauna under the act and therefore not protected in any way. From today's information I judge that the severe restrictions placed on the Spalding-Peterson party early in 1959 where at the whim of the minister on the advice of the anti-American McDougal who as head of entomology is Roff's boss. Roff himself is considered a good bloke. Will try to learn more on what actually happened.

January 5-6. Visited the Fred Laceys at Palmwoods, they driving me there. Returned to Brisbane with Malcolm and Elaine McEnnes. The heat wave ended with heavy rains on 5th, continuing as showers on 6th. Did scenic drives to Montville and Mapleton on the Blackall Range, Buderim Mt., Maroochy and Mooloolabah. Many holiday campers at latter places; conditions look rather primitive.

Thursday, January 7. In morning picked up mail at Botanic Garden and talked with Selwyn Everist (Govt. Botanist) who has just returned from annual vacation. Most of Everists' time occupied with routine work and special advisory jobs. Currently he is embroiled in a controversy over the control of aerial spraying by conventional aircraft and helicopters. Helicopters now extensively used. In a recent case in which a helicopter operator, spraying

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groundsel bush (Baccharis holmifolia), was sued for damages to neighboring crops, a judge set provisional limits of air spraying for the protection of land users. The government wants to pass laws or set up regulations based on existing knowledge and experience. Everist took part some years ago in the large-scale elimination of brigalow scrub in west Queensland, partly by aerial spraying (methods more selective than aerial spraying now in favor). U.S. is practically the only country in which there is any legislation governing aerial spraying.

In afternoon began a visit to family by travel to Ipswich by rail motor to visit brother Eric.

Friday, January 8. On to Toowoomba by rail and bus to visit the Andrews, thence by rail to Dalby to visit brother Alan.

Saturday, January 9. In Dalby. Very prosperous small, plain town of 8000 people - all white except for one Korean war bride. Economic base is large-scale farming of wheat, barley, milo, safflower, linseed, etc. and sheep and cattle grazing. 1959 the best season in many years. This applies to most of Queensland. Yet in the SW drought has prevailed for 3 years and stock losses have been heavy.

Sunday, January 10. Returned to Brisbane.

Monday, January 11. Made Qantas bookings for departure from Sydney January 23 and arrival New York January 24. Procured Commonwealth income tax clearance in a few minutes. Arranged to fly to Sydney on 13th.

Visits to Herbarium, Museum and Prof. Herbert, head of botany at the university. Botany is one of the few departments left at the old university; most others have moved to the new site at St. Lucia. Herbert has staff of six lecturers and several "lab. boys". Next to Physiotherapy, botany about the least popular course at university. Coming class includes 20 forestry cadets. Herbert no longer does any personal research. Office very untidy. Botany at Queensland University appears down hill.

Tuesday, January 12. Morning spent at Cunningham Laboratory of C.S.I.R.O. at the new university at St. Lucia, about 4 miles out of town. Lunch in town with J.T. Brooks. At old university in afternoon saw Prof. Perkins of Entomology (with Brooks) and L.J. Webb, rain forest ecologist of C.S.I.R.O. Evening with the Humphreys, including drive up Mt. Coot-tha to view city lights.

At St. Lucia, cousin Colin Andrew showed me through labs and greenhouses and I had a long talk with J. Griffiths Davies, Chief, Division of tropical Pastures. Coordinated elements of divisions of Soils, Plant Industry, Entomology, and Mathematical Statistics also working on pastures research. Much basic work being done. Good number of scientific staff of c. 20 in Tropical Pastures have studied and traveled abroad. Davies a quiet-spoken Welshman with 20-30 years of pastures research in Australia, beginning in South Australia. Extensively traveled. Will visit U.S. this year on pulse investigation - especially forage soy beans.

On plant side, particular attention being given to legumes, legume bacteriology, and nutrition. Productivity of natural pastures limited by acute shortage of nitrogen. No promising nitrogen-fixing native plant has been found. Extensive importations being made, chiefly from the Americas and Africa to date,

though attention now being turned to S.E. Asia. Original research has upset the belief that temperate climate legumes are the only efficient nitrogen-fixers. A difficulty in pastures genetics is that most of the best tropical and subtropical grasses known are apomictic; gamma radiation being tried in effort to induce mutants. Current nutrition work chiefly in phosphorus uptake (Colin Andrew); radio isotope tracer techniques being used in study of Ion uptake and distribution. In legume bacteriology it has been found (Morris) that magnesium, not calcium, as formerly believed, is the essential element for Rhizobium growth. Davies plainly a top-notch man with a high grade team. He has seen the warm climate pastures research in Florida and considers Australia well ahead of it.

Len Webb (formerly in phytochemistry) has been on forest ecology for several years. Has recently published (Journ. of Ecology) a physiognomic classification of Australian (or Queensland ?) forest communities and is now preparing a paper on the floristic aspects. Has special interest in relationships of the Australian, Malaysian and Subantarctic elements of the flora, also edaphic factors, and relationships between closed forest and open forest. Setting out for Britain and Europe next month, and will also visit eastern Brazil for field studies. Is assisted by Geoff.... They are in Plant Industry Division of C.S.I.R.O. Have no clear idea of what Webb has achieved in his classification. He says he has been a bit heretical. Is starting for quick reference purposes a "miniherb" of mounted botanical fragments; the specimens I saw were without authorities for the names and without field notes. Depending very largely on Queensland Herbarium (Blake & Smith) for identifications.

Davies spoke of C.S.I.R.O. need for an experienced systematic botanist. They have only Nancy Burbridge, working largely on grasses in Canberra. Tried to get Blake, but he preferred to stay at Herb. Qld. C.S.I.R.O. asking too much of Herb. Qld. in plant identification.

Wednesday, January 13. Visited Qld. Herbarium in morning. Was glad to see that, however belatedly, a new start has been made on identification of our Cape York plants of 1948. Blake in a day or two will complete a list of the 1953 New Guinea sedges. Lee Pedley, a junior who has already begun revisional work on Australian Acacias (over 600 species), is on the Cape York species.

Left Brisbane at 5:25 on TAA Super-Viscount turboprop plane and arrived Sydney 7:10 p.m. Flight of 480 miles. Was 50 minutes getting from airport to hotel. Expected to stay at the Wentworth, but no room there so went to the Australia.

Thursday, January 14. Morning at Australian Museum; had Basil Marlow to lunch at hotel; at Botanic Gardens in afternoon. Met at Museum J.W. Evans (new director), Gilbert Whittey (fishes), Harold Cogger (herps), Mary Davies (librarian), John Beeman (display). Davies an entomologist specializing in Homoptera; strong interest in zoogeography; New Guinea insects predominantly Indo-Malaysian in origin; southern land areas probably had direct continuity with each other as late as late Mesozoic. Good start and progress has been made in modernizing the exhibition halls and making them more attractive. Darwinian centenary has been a boosting factor. Concentration is on what might be called small temporary displays featuring action and color. These so far in invertebrates (very good long panel on evolution) and anthropology. Old bird and mammal dioramas poorly done and very badly lighted. A new mammal group (wombats) not much better.

Sydney-Hobart

Beeman eager to visit U.S. to study techniques; strikes me as a good man of pretty high artistic ability. Marlow (formerly in Game Dept. in N. Rhodesia, and C.S.I.R.O. Wildlife Survey, Australia) is reorganizing mammal collections. Is breeding and observing Antechinus flavipes in his office; very ingenious cages.

At Gardens, Director Andersen and 2 i/c Mair both were away. Talked with Johnson, Joyce Vickery, etc. Johnson has not got to publication stage on a revision of Casuarina on which he was working in 1956 (my last visit). Now on a regrouping of Eucalyptus (over 400 spp.) and revision of N.S.W. species. Vickery was recently in U.S. on a world tour. Miss Tindale working on Australian Cyathea, etc. There is a staff shortage. Anderson never was a live wire.

Friday, January 15. Phil Spalding breakfasted with me at the hotel. He and Bill Hosmer (who came in later) are preparing for a herps collecting trip into the Northern Territory and West Australia. Have bought a small Land Rover. They leave for Canberra by road Monday, en route the south end of the H-S Railway, from where the vehicle will be railed to Alice Springs. Plan to go west from Alice Springs to Lake Howlitt; a small perennial stream, originating in a rock hole c. "8 x 9 ft. by 18 ft. deep", flows for 50 miles through an attractive valley into the lake (a dry salt pan). A little known tribe of abos there (about 80 people seen when Hosmer was there with Donald Thomson several years ago). Prepared also to work also on the Coburg Peninsula in Northern Territory; in the Kimberlys in West Australia. There may be difficulty in getting a collecting permit in W.A. An influential gentleman named Fraser, who has something to do with conservation in Perth, reported hostile to collectors. Fairly recently the Australian Museum was refused a permit. Reptiles and amphibians are protected fauna in W.A. Phil knows someone in the U.S. Embassy in Canberra and this might help. Phil arrived by Qantas from New York earlier in the week. Must return by April - income tax and family reasons. Apparently Hosmer will carry on until August. He has been engaged for two years. An area in Sumatra, where he was supposed to go for Chicago and AMNH, 50/50, is closed for military reasons. (Chicago was putting up $4000 for this project).

I have TAA bookings for Hobart tomorrow; thence to Canberra on the 18th.

Saturday, January 16. Left Sydney on TAA Vickers Viscount at 9:40 and arrived Hobart 12:45, with stop of c. ½ hour at Launcester. Air bumpy over Tasmania, which is in the throes of a heat wave. Soil blowing some miles N. of Hobart. Bush fires in mountains. Strong N. wind from dead heart of Australian continent. Thick brown haze. Temperature reached 102 in Hobart today. A burning heat, but dry, and not too uncomfortable.

Staying at Hadley's Hotel. Edwardian air. Very clean. Good food. This a weekend vacation visit. Was glad to find Hobart Van Deusen here, staying at the Wrest Point Hotel. He flew down from Melbourne yesterday and leaves for Adelaide Monday afternoon. Dined with me this evening. Later we went to the hospitable house of Dr. and Mrs. Don Martin of C.S.I.R.O. Div. of Plant Industry. Martin a horticulturist; head of this division in Tasmania; specialist in apples; has visited Europe and U.S. twice in official capacity, once (1957) on vacation. Towards midnight we drove to marine signal station on top of 1100 ft. Mt. Nelson.

Numerous phone calls after my arrival, first to trace Van, then Bill Thorn of Iowa, who was due to arrive two days ago with a botanist from Melbourne but has not turned up. University botanists and museum director courteous enough

but not outgiving. Prof. Barber, head of botany at the university, must be a very important and busy man - seems only vaguely aware of what his staff is doing. This is summer vacation, of course.

Sunday, January 17. Heat wave ended last night with a moderate cold front. Thunderstorms and local heavy rain this afternoon and evening. Over 400 sq. miles of forest burnt in Tasmania; some still burning.

Day spent on 4165 ft. Mt. Wellington, which rises immediately to W. of city. Good motor road to top. In morning Don Martin drove and was my guide. He has published a study of plant zonation on the mountain and knows many species on sight. About 4 zones of Eucalyptus forest, beginning with E. obliqua and ending with a snow gum (E. coccifera). Some fine E. regnans on middle slopes. Nothofagus cunninghamii abundant as a tree up to c. 20 m. high as an in gullies from c. 2000 ft. up to snow country at c. 3500 ft; above that and into the E. coccifera zone it occurs as a shrub of 2-4 m. forming large, discrete clumps. E. coccifera goes into an alpine shrub zone as a shrub, but does not reach to the summit. Extensive rocky (dolerite) plateau on top. Great variety of prostrate and rounded shrubs (Epacridaceae, Compositae, Myrtaceae, Exocarpus sp., etc.), big stiff gray clumps of Astelia alpina (wider, larger and stiffer in leaf than the New Guinea form), one bright green cushion plant (Abrotanella fosteroides), a small Poa, fewé other grasses and Restionaceae. There is local indignation about a TV tower which is being built in top, and especially the wide clearing for a power line up the mountain.

After lunch I was taken up the mountain again by Max Bennett, an administrative officer of C.S.I.R.O. and keen naturalist. Saw much more of the summit area, walked into a gully about 1/2 way up mountain (with small beech and sassafras), and to a picnic spot at c. 1500 ft. where great tree ferns ("man-ferns"), Dicksonia antarctica, were a fine sight.

Evening with the Bennetts at Taroona, an eastern suburb 5 miles out on shore of the harbor.

Monday, January 18. Left Hobart 10:55 a.m. by Viscount jet-prop, arrived Melbourne 12:30. Left Melbourne 4:30, arrived Canberra 5:45 (Fokker Friendship jet-prop with 2 Rolls Royce motors). At Hotel Canberra.

Smooth, comfortable flying, but the turbo-jets fly high (15,000 - 20,000 ft.) and clouds blotted out most of the land.

Hobart cooled by a SW wind this morning. Impressions there are of quiet streets, old Georgian stone, roses, hollyhocks, and cathedral bells. Town of 105,000, established as a convict settlement in 1801, later an important whaling port. Melbourne's population approaching 2 million. Big, busy plains city, stained with red dust and sternly moral. No Sunday paper; pubs close at 6 p.m. Saw no man or woman in shorts. Temperature in 70's today. Docks were idled toward end of last week by heat. A river port on the muddy Yarra, "too thick to drink, too thin to plow."

Tuesday, January 19. Most of day spent in talking shop in C.S.I.R.O. offices, chiefly with R.D. Hoogland (Systematic Botanist) and Ross Robins (Plant Ecologist) of Regional Surveys Division. Hoogland has been on the

Canberra

New Guinea project 6-7 years, Robins (who replaced Taylor) 3-4 years. Most of C.S.I.R.O. in unimpressive temporary buildings. Regional Surveys has its own small herbarium building, housing separate New Guinea and Northern Territory collections. Canberra has another herbarium in C.S.I.R.O. (Plant Industry ?) and a fourth at the Forestry School. Hoogland has assembled a useful but still limited Library. Would rather be working in a big institution with good library and collections; would perhaps return to Flora Malesiana but for his Australian wife, who does not like the Dutch climate. An assistant botanist being advertized for (one applicant is van Royen, lately of Flora Malesiana). Ru has done no field work in New Guinea for two years; returns this year, probably to Middle Sepik. Recently spent nearly a year at Leiden, revising the Cunoniaceae for Flora Malesiana. Indonesia has not resumed financial support of Flora Malesiana. Dutch Government putting up the money. When Britain recently began giving £2000 a year, the Dutch Govt. reduced its grant by that sum. Relations good between Dutch botanists and Bogor, and collections being exchanged. Indonesia would resume financial support of Flora Malesiana if the project were moved out of Holland, and there has been a proposal to shift it to Brussels.

Robins a very serious little man who finds the New Guinea vegetation hard to understand. His official duties require merely a mapping and description of forest types of potential economic importance - as far as I can make out (e.g. Entsia forest, Fagaceae forest). He has a personal interest in broad classification of the vegetation. We are to meet again tomorrow.

Hoogland took me to the Dutch Embassy, where New Guinea attache Smit was very cordial. Scraps of new information on the unsuccessful Star Mts. expedition are that Mts. Juliana and Antares were climbed; sickness, including "jaundice" in the helicopter crews, was a handicap; one section of the retreating party walked overland from the slopes of the Star Mts. to Hollandia. (Hoogland says the expedition was "over organized"). A French movie expedition is striking across the mountains from high on the Digul in Dutch N.G. to somewhere on the upper Sepik.

Wednesday, January 20. Most of the day spent with Robbins, discussing New Guinea plant communities (he doing most of the talking), looking at maps, photos, and air mosaics. The air photos were made at 25,000 ft. for topographic mapping and even over the 5000-10,000 ft. highlands are too high for easy recognition of vegetation types. Nothofagus forests do, however, stand out as dark velvety patches on some of the photos. Their distribution, if Robbins' photo recognition is to be trusted, is scattered and mainly on S or SE slopes. Much less Nothofagus on the Bismarcks than on the Ruber. Robbins considers that the forest types go about 1000 ft. higher on Mt. Wilhelm than on the other high mountains of the area (Hagen and Gilowe). Some of his views on classification of major communities have changed since we corresponded on the subject a couple of years ago, and more nearly approach mine, but I feel he still has no proper understanding of the uppermost forests on the mountains.

Through Hoogland's intercession, and special permission from the government department concerned I have been allowed to have a copy of the cyclostyled preliminary report of the C.S.I.R.O. land research team on "The Goroka - Mt. Hagen area, New Guinea." I am asked not to show it to anyone else, and not to quote from it. Restrictions seem very ridiculous.

Canberra-Sydney

Visited(with Robbins) the cartographic section of National Mapping, where Frank Welle showed me the latest they have on New Guinea. There are only drainage base maps made from air photos for use of the C.S.I.R.O. surveys. There is nothing in reports we had in the U.S. that new topographic maps of the Highlands would soon be published in Australia.

Other C.S.I.R.O. men met: Christian, head of Land Research and Regional Survey and leader of the first field parties in New Guinea; J.C. (Jack) Saunders, Forester or forest botanist with the New Guinea party; R.A. Perry, botanist with Northern Territory survey; Storey, recently arrived South African ecologist, with Hunter River survey.

Thursday, January 21. Called at U.S. Embassy, where an 11 o'clock appointment did not allow much time for all the inquiries which were made of me. Talked with Political Officer (Bob) Hoey, a woman assistant whose name I did not catch, and a young fellow named Caldwell. Hoey and friend of Phil Spalding, who stayed with him early in the week. Much interested in political feeling in New Guinea. None of the political officers has visited there. Features of the chancellery were marines in uniform, female help with apparently not much to do, and entrance and exit of motor traffic right to left, in the American way.

My hotel full of distinguished looking people gathered for farewell functions to the retiring Governor General, Field Marshal Slim.

Left Canberra by Fokker prop-jet (TAA) at 1:08, arrived Sydney 1:50. Country almost entirely covered by cloud. It is clearly seen from the air, by relic stands, how the original rather dense savanna forests of the Canberra highlands and neighboring N.S. Wales have been replaced by treeless grasslands or grasslands with a scattered park-like stand of Eucalyptus trees. Change brought about by ring-barking the trees for pasture improvement.

Hoey remarked on the good reputation that A.E. has in New Guinea.

Friday, January 22. Morning spent at Australian Museum. Talked for most part with Allen Keast, Curator of Birds and Reptiles. His doctorat thesis (Harvard) on bird speciation in Australia is about to be published at Harvard. Aggressive young chap with very active mind, who may be expected to go a long way. Has recently returned from a 10-day field trip with Ernst Mayr. Impressed with Ernsts' field knowledge and quick ability to recognize birds on sight and sound. Keast hopes soon to do a study of bird speciation in Europe. Should not be surprised if he does not stay long at the Australian Museum.

After Keast, Marlow seemed insipid and unsure of himself. Also talked with D.F. McMichael (molluscs), G.P. Whitley (fishes), (retired), and Harold Cogger (herps). McMichael did field work in New Guinea in 1957 and is much interested in the still largely unknown N.G. land shells; many more spp. there than in Australian continent. Cogger gave further information on the difficulty the Australian Museum has had in getting herps out of West Australia. The obstruction is from one Fraser, in Perth. The Museum permit came through after 3-4 months delay. It was for monthly live shipments of some small lizard on which Cogger was doing life history and breeding studies. The study had to be dropped for want of materials.

Sydney-Flight to U.S.A.

C.E. Lane-Poole came to the hotel to lunch with me. Now 75, did the first real forest exploration and spot surveys in eastern New Guinea in the early 20's, later was head of the Australian Forestry School, is now retained as consulting forester by the Bulolo timber company. Graduate of Nancy; early experience in forestry in Sierra Leone and South Africa. Thoroughly alert; likes a few drinks; knows wines very well; a polished steel hook functions for his lost left hand. Said hook attracted considerable attention from ladies in the hotel lounge.

Saturday, January 23. Was visited at the hotel by Phil Spalding and Bill Hosmer. Phil reported that he has from Hoey of the Embassy at Canberra personal letters of introduction to Archer, Administrator of Northern Territory, and to Fraser, the bogeyman in Perth. He and Hosmer expect to leave by road Tuesday for the Central Railway at Quorn in S. Australia, from where the outfit will be trucked to Alice Springs. Radcliffe and Coleby of Wildlife Division, C.S.I.R.O., have offered laboratory facilities at Katherine. If Museum approves, one Alec Holmes, who was a photographer with Amand Denis in Africa, a former editor of Wildlife (Australia), and a member of Herpetological Society of Australia, will be taken on as an extra hand in March, at no expense to the expedition except for food. Hosmer has known Holmes since 1948. The Land Rover being fitted with spare gas tank of 40 gal. capacity, plow seat on bennet, etc. Hosmer will collect what mammals he can for AMNH.

Later, as I was packing my bags, Phil came in again to show me a letter from Gregg, Director of Fisheries and Game, South Australia, in reply to a request for a collecting permit written by Bogert of AMNH on December 19. Tone of letter hard to understand (unless it was written and signed by some clerk in Gregg's absence ?). Gist of it is that permit is under consideration. South Australian protection laws are being revised ! Strong stress laid on the fact that a permit is necessary for collecting in S. Australia. On the information I have, the only collecting likely to be done in S.A. is while the expedition is in transit to Alice Springs (in N. Territory). And, my impression from talks at the Australian Museum is that herps are protected fauna only in West Australia. Suggested that if Spalding-Hosmer wish to collect in S.A. they check with local authorities re coverage of the existing Act; then contact Gregg by phone or telegram if necessary.

Left Sydney 4:15 p.m. on Boeing 707 4-motor jet of Qantas Airways. Nandi, Fiji, 1891 statute miles, reached in 4 hours 5 minutes. Left Nandi 11:30 p.m. (Fiji time) on 1329-mile flight to Honolulu and arrived there at 6:17 a.m. on the 23rd, Fiji time (the crossing of International Date Line accounts for the anomalous second Saturday Jan. 23). Left Honolulu at 10:40 a.m. their time and arrived San Francisco (2437 miles) at 3:15 p.m. Honolulu time.

We were scheduled to depart San Francisco at 11:30 p.m. local time, but fog closed down about 8 o'clock and we spent the night at the International Inn Motel as guests of the airline.

Sunday, January 24. Left San Francisco at 10:03 a.m. in rain and fog and arrived New York in 4 hours 55 minutes; distance 2700 miles. This was at 5:58 p.m. New York time on a clear, cold night.

Distance from Sydney to New York 10,247 statute miles, flying time 20 hours 22 minutes, average speed between 8 and 9 miles per minute.

Sydney-Miami to U.S.A.

A. Lane-Poole came to the hotel to lunch with me. Now 77, did the first trail cross-section survey for Queensland forestry in the early 20's. Later was head of the Australian Forestry School, is now retained as consultant forester by the Bulolo Timber Company. Graduate of Yancy; an hydrologist in forestry in Sierra Leone and South Africa. Thoroughly alert; like a few another knows where very well; a cultured good conversationalist for his last years. Said much authoritatively about the attention from airlines to the hotel lounge.

Saturday, January 23. Was visited at the hotel by Phil Spalding and Bill Hooper.

Phil reported that he has made trips of the Embassy at Canberra, personal interest of International to Tarawa, Australian of Portuguese Territory, and to Fresno, the bo-gram in Seattle. He has arrangement to leave for Australia for the Contract Meeting at Sydney in June. Said Bill, Foundation Outfit will be trucked to Alice Springs. Facilities and Odessy of Australia Division U.S.A. have offered laboratory facilities at Lakemba. I discussed Odessy with one Alex Holmes, who was a professor during the Australia in China, a former editor of Fortune (Australia), and a member of Hydrological Society of Australia. Will be taken on as an extra hand in March, at no cost to the expedition, per-sent for food. Discovered has known Holmes since 1942. The last three years Alice with spare gas tank of 40 gal. capacity. Now sent on permit, also. Hooper will collect what material he can for MMM.

Adam, who was packing my bags, said he was in Australia in 1942 as a labor from Greece. Discovered Minerals and Oil, South Australia, in reply to a request for a collecting permit written by Alex of Adam on December 19. Was called back to undertaking business in Sydney. Was interrupted by some short [illegible]. Said Alex is that [illegible] Australian. South Australian crocodile laws are not be revised [illegible] Adam into the fact that a permit is necessary for collecting in [illegible]. On the information have, the only [illegible] Alice Springs in N.T. is [illegible] the expedition is in regards to Alice Springs (in N.T. Jordstory). Adam's investigation from talks at the Australian Museum is that Dampa are probably rare only in West Australia. Suggested that if material - Damper - is to collect in N.T. then crogel with local authorities necessary [illegible] the existing [illegible] then Dampa [illegible] by phone or telegram if necessary.

Left Sydney 8:15 a.m. on Qantas 707 A-motor jet of Qantas Airways. Sunset. Flight 1801 statute miles. Rounded in 4 hours 5 minutes. Left Sydney 11:30 p.m. Flight time, on 1320-mile [illegible] to Honolulu and arrived there at 6:17 a.m. on the same day. Flight time, the crossing of International Date Line. Because for the Australian season [illegible] 707. Left Honolulu at 10:40 a.m. Pacific time and arrived San Francisco (2457 miles) at 3:10 p.m. Pacific time.

We were scheduled to depart San Francisco at 11:30 a.m. local time, but for [illegible] about [illegible] o'clock and we spent the night at the International Inn adjacent to the airline.

Sunday, January 24. Left San Francisco at 10:33 a.m. in rain and fog and arrived in New York in 4 hours 55 minutes, distance 2700 miles. This was at 3:58 p.m. New York time on a clear cold night.

Distance from Sydney to New York 10,24[illegible] statute miles. Flying time 20 hours 2 minutes, average speed between 3 and 9 miles per minute.

U.S.A.

Customs clearance at Idlewild Airport was expeditious (we had passed Immigration in Honolulu). New "self-serve" system by which each passenger grabs his or her own baggage and takes it to Customs officers for examination, sort of cash and carry shopping carts being provided for the purpose, and negro porters being available to help if needed. My time from airplane landing to my hotel in Manhattan was 10 minutes short of two hours.